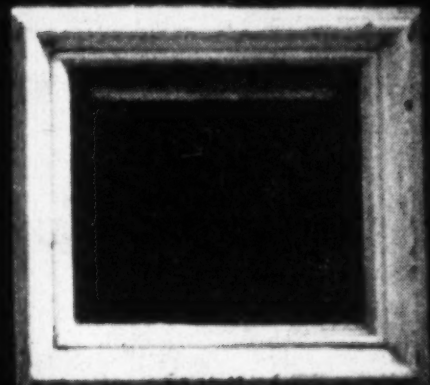


AR

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Architects—Spence & Price. A.R.I.B.A.
Transparent Paper Limited—Bury.
University College, London.
Architects—Corfiato, Thomson & Partners. F/A.R.I.B.A.
Warwickshire County Council—Polesworth School.
Department of Health for Scotland—Brown Trout Research Laboratories, Pitlochry.
Natural Sciences Building, Swansea.
Architects—Sir Percy Thomas & Son. F/A.R.I.B.A.
North Western Gas Board, Lostock Hall, Preston and at Denton.
Dunlop Cotton Mills Ltd.—Rochdale.

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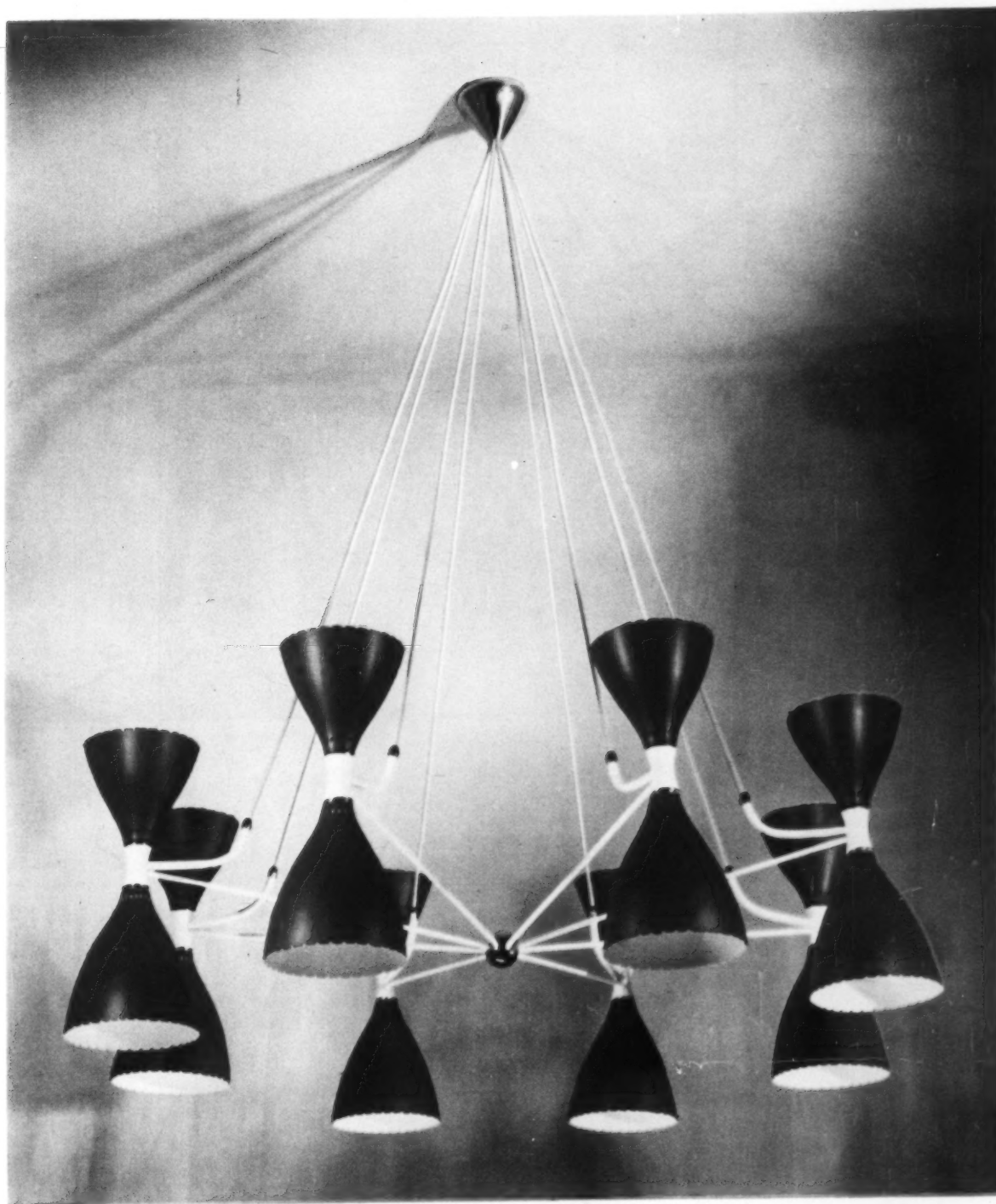
Built for operating in a very small cupboard, its unusual compactness, combined with its many outstanding

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Halcyon offers highly efficient heat transference to the air flow, resulting in a discharge of pure warmed air within a few minutes. Halcyon is silent — there is no smoke — there are no fumes.

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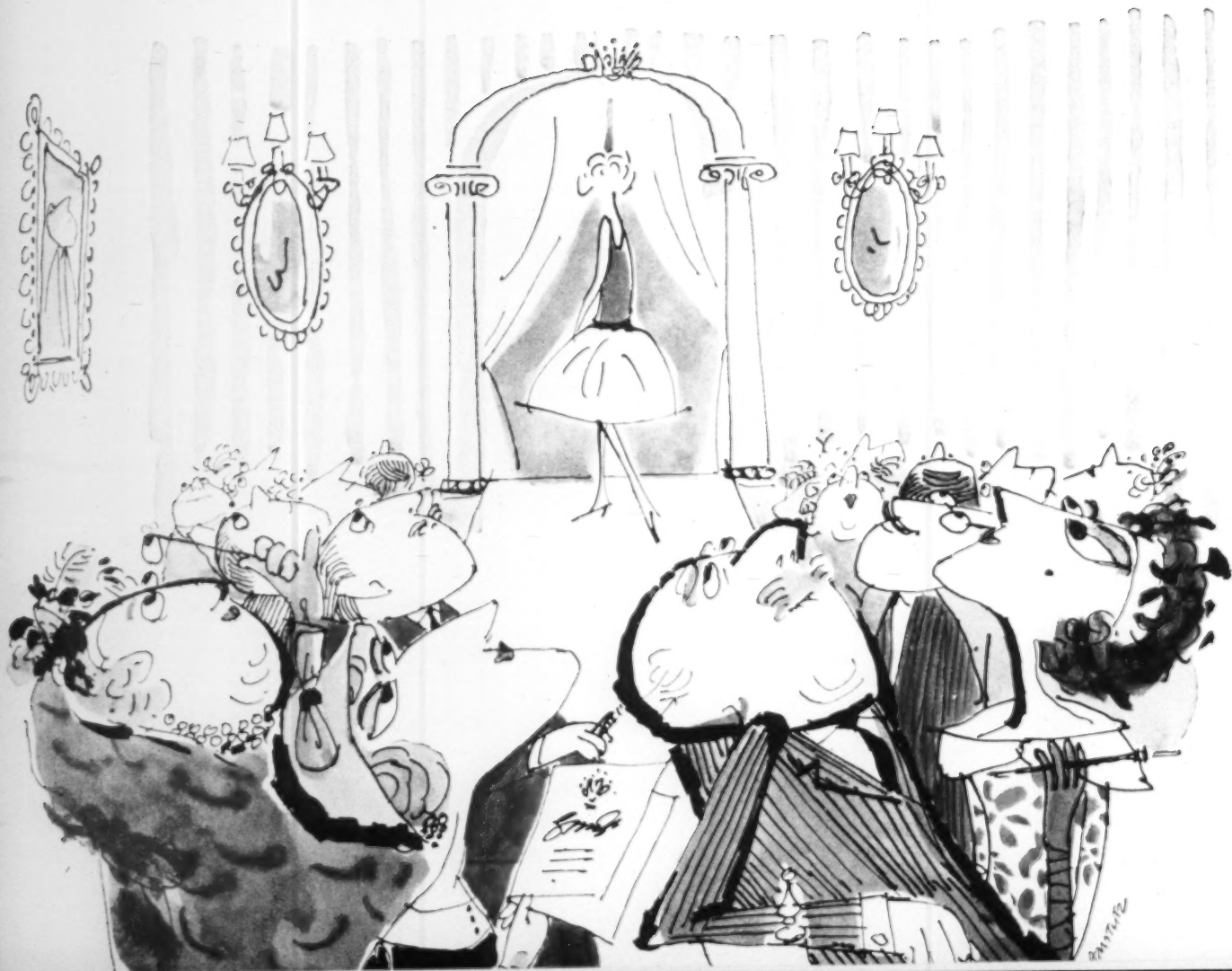
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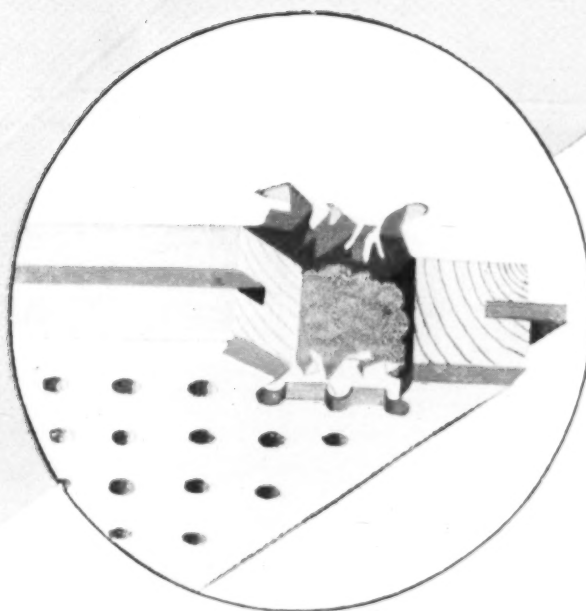
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High fashion from Paris cannot compete with the latest creation from the house of Bowater—the Bowater T A (Thermal/Acoustic) Panel. But smart appearance is only one of the attractions of this dual-purpose panel, which also has a very high thermal acoustic efficiency and a remarkably low cost. It's well worth looking into for **your** next job—whatever it is. Here are some technical facts to start you thinking...

DUAL-PURPOSE EFFICIENCY— the vital statistics:

Sound Frequency (c.p.s.)	250	320	400	500	640	800	1000	1250
Sound Absorption Coefficient	64	59	71	77	80	87	86	87

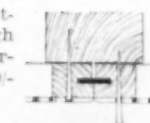
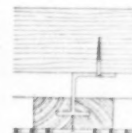
These figures clearly show that, in its Acoustic capacity, the new Bowater panel is way ahead of competition. Its performance is particularly good in the lower frequencies where noise in industry and in ordinary daily life is most common—and most dangerous. In Thermal insulation, too, the panel sets an exceptionally high standard—the thermal conductance (C value) is as low as 0.22. A dual-purpose panel indeed!

MADE LIKE A SANDWICH

Between the facing sheet of perforated hardboard and the kraft backing, there's a layer of incombustible mineral wool. This 'sandwich' is set in a perfectly square, jig-made timber frame which keeps it rigid and absolutely level with the other panels (hardboard splines are supplied to slot them together). A thin fibrous skin between the hardboard and the mineral wool prevents any 'fall-out' through the holes. The entire panel weighs only 6½ lb., measures 2 ft. square, and is 1 in. thick. It can be supplied in any colour from the I.C.I. "Dulite" range.

SO EASY TO FIX

- 1 By using special Concealed Securing Clips (screwed to the existing structure) which hold the panels secure and leave an air-gap above, to add to their already outstanding thermal efficiency. From 32.6d per sq. yd. FIXED.
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- 3 By using 2 in. galvanized lost-head nails driven through the appropriate outer perforations. From only 29/- per sq. yd. FIXED.



A T/A ceiling quietly enhances the displays in this Edinburgh Store.



Services are easy to get at through a T/A access panel.

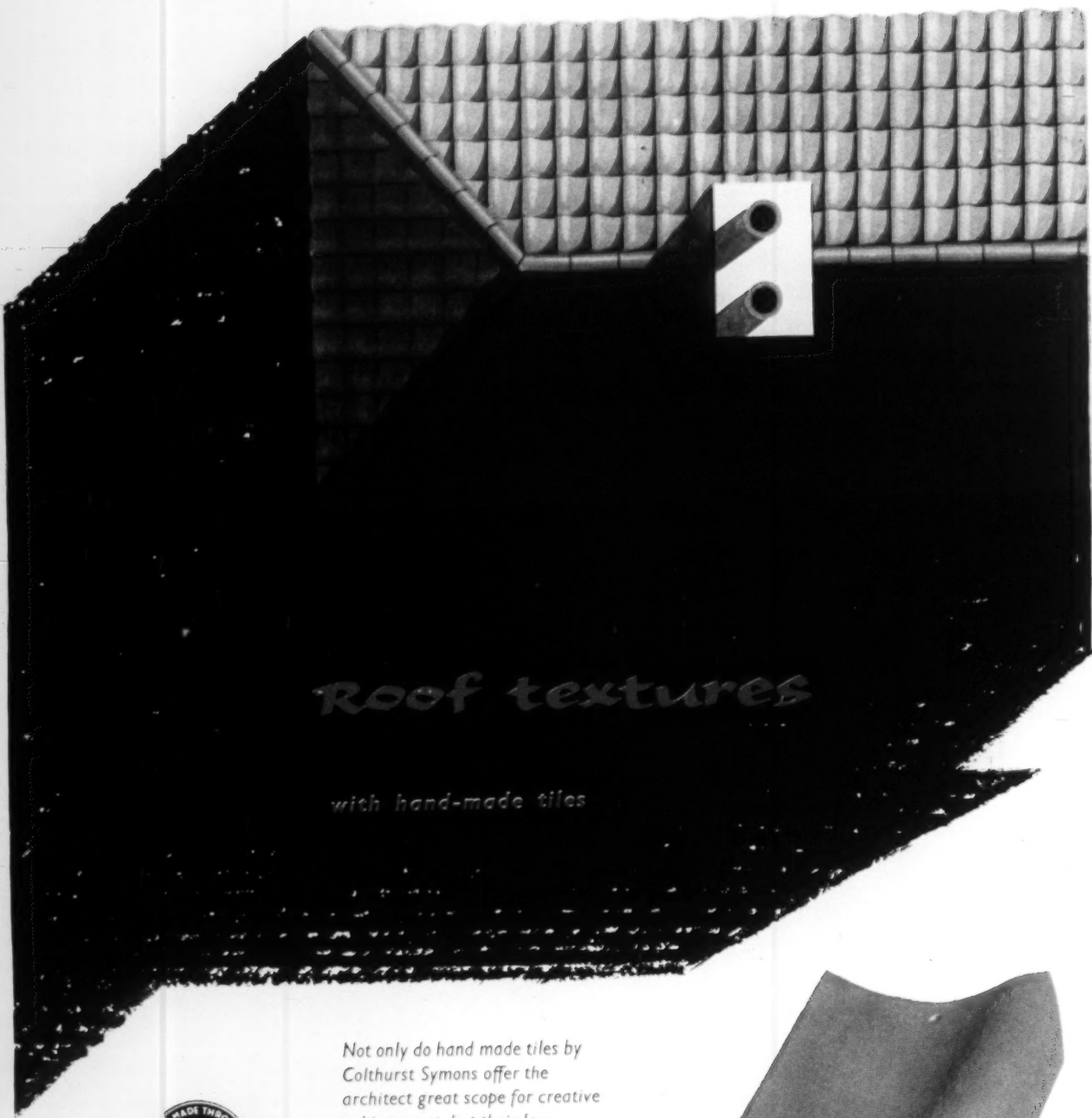
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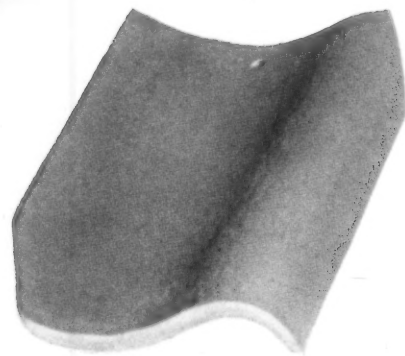
Bowater T/A Panels

BUILDING BOARDS DIVISION, BOWATERS SALES COMPANY LIMITED,
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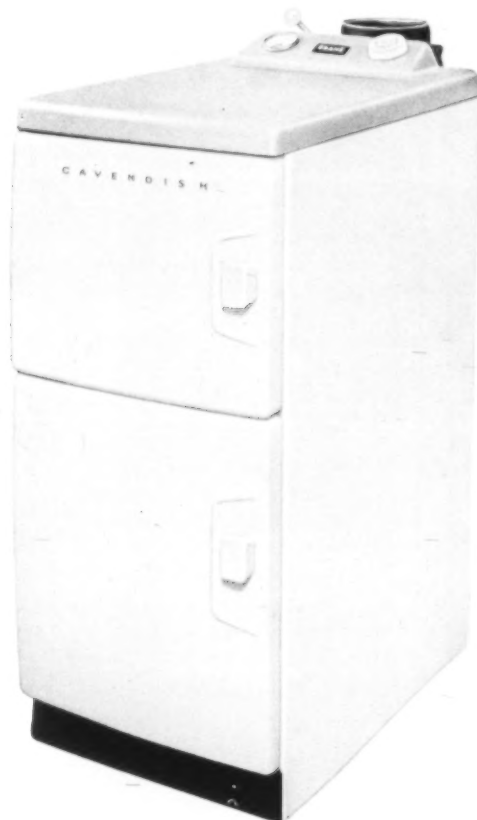


Not only do hand made tiles by Colthurst Symons offer the architect great scope for creative achievement, but their low maintenance cost will pay tribute to his practical sense of values
PANTILES No. 6: The natural rough texture gives an individual character
Size $13\frac{1}{8}'' \times 9\frac{3}{4}''$, 1,000 tiles cover 70 square yards (approx)



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There never was a better looking, cleaner working, more efficient central heating boiler than the new **CRANE CAVENDISH**



- A range of solid fuel burning boilers* for whole house warming and indirect hot water supply.
- Elegant and labour-saving design.
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*Also available for oil burning.

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	No. 4	47,000
	No. 5	61,000
Oil burning boiler	No. 3L	30,000
	No. 4L	45,000
	No. 5L	60,000

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G.9

monthly review by

WILLIAMS & WILLIAMS

'WALLSPAN' FOR EASTBOURNE LUXURY FLATS

1 The new 7-story Park Gates flats overlooking the sea at Eastbourne is, as far as we can trace, the first block of luxury flats in this country to have glass curtain walling. Wallspan was specified by the architect who was largely influenced by the detailing and way in which 'Wallspan' is designed for precision construction. This choice was amply justified in a trouble free installation.

The infilling panels are sprayed with a special paint which gives a multi-colour effect from one spraying.

Williams & Williams Standard Metal Windows to BS.990 have been used extensively both in the 'Wallspan' grid and also in the brick facades.

Park Gates present a very elegant face on every side—no pipes are visible on the exterior of the building. Single stack plumbing is used and this is thought to be the first time that it has occurred in a seven-story building outside the L.C.C. area. The interior is equally carefully detailed—for instance television and telephone wiring is laid on to every flat and apparatus merely needs to be plugged in.

A novel feature is an annex of ten bedrooms with private bathrooms which can be rented by tenants for their visitors' occupation.

BRITAIN'S TALLEST OFFICE BLOCK HAS ALUMINIUM WINDOWS BY WILLIAMS & WILLIAMS

2 Eastbourne Terrace, Paddington, has already been in the news for the fantastic speed at which construction has gone on. The 18-story tower block was 'topped out' almost exactly a year after work started on the site. Williams & Williams contribution to this notable achievement was the supply of 2698 double hung windows in aluminium. In the tower block from the 8th story upwards, the windows are double glazed for additional thermal insulation.

The steel windows used in the lift halls of the tower block etc. were also supplied by Williams & Williams while the links between the tower block and the wings are in 'Wallspan' infilled with clear glass.

The balustrading which runs round the cornices of the wings is also a product of the Williams & Williams group. The upstands are made of steel and the rails are aluminium.

'ALUMINEX' GLAZING GIVES IDEAL WORKING CONDITIONS AT NEW PERMUTIT FACTORY

3 The extensive use of 'Aluminex' Patent Glazing combined with the wide uncluttered floor space resulting from the use of portal frame construction gives exceptionally good working conditions on the floor of Permutit Company's new factory at Ealing. Great importance has been attached to this aspect of the new building and the whole project including the interior colour schemes was planned in detail by the architects and engineers. The factory floor area of approximately 36,000 sq. ft. is divided into three bays, two of which have electric travelling cranes running the full length. Canteen and toilet facilities including showers and lockers are grouped together as an extension of the adjoining office block where Williams & Williams provided the purpose made windows and lantern lights as well.

'WALLSPAN' CURTAIN WALLING AT LEEDS GRAMMAR SCHOOL

4 As can be seen from the photograph, interest is added to the long facade of the main classroom block by a 'picture window' treatment of the staircase wells using clear-glazed 'Wallspan'. The use of individual staircase access to the blocks of classrooms rather than corridors running through the building from end to end is an unusual feature. It comes about because the north/south facing block has to be built two classrooms 'thick'. The north facing rooms open on to terraces on the first floor and at the top of the building receive a measure of sun through roof glazing. 'Wallspan' is used also in the south-east elevation of the foyer linking the classroom and assembly hall blocks.

A WILLIAMS & WILLIAMS 'CO-OPERATIVE' CONTRACT

5 Everything in the new St. Helen's Co-operative Society store which Williams & Williams could supply—they supplied. 'Wallspan' Curtain Wall-

ing, purpose made aluminium windows, standard steel windows, 'Aluminex' Patent Glazing, 'Aluminex' Lantern Lights and pressed metal work. Quite an impressive list—and it had the added advantage that all these products could be integrated by the architect on one schedule so as to ensure a logical and easy-to-control sequence of delivery.

NEW STANDARD WINDOWS

NEED NO PAINTING!

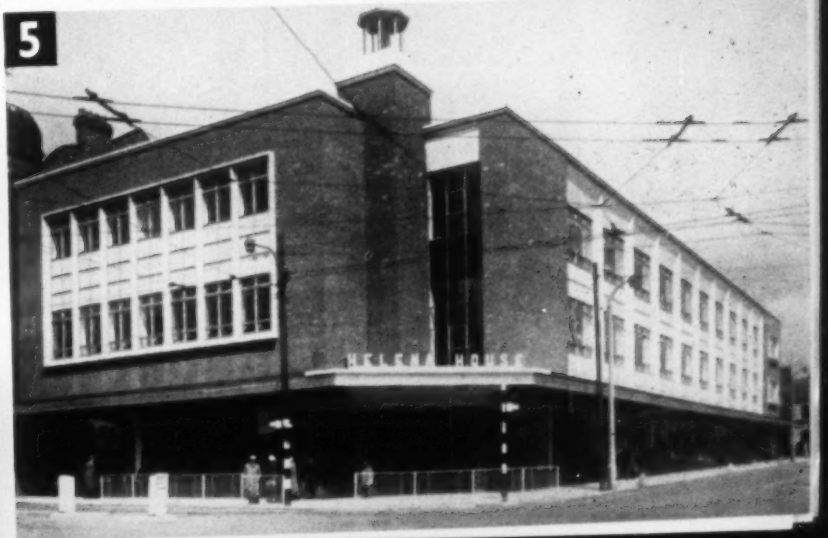
Steel windows to BS.990 are now available electro-galvanized, phosphated, primed and painted—AT NO EXTRA COST! Finish is I.C.I. Beige R215/166/2. These windows are fully protected and need no painting unless to change their colour.

WILLIAMS & WILLIAMS RELIANCE WORKS • CHESTER



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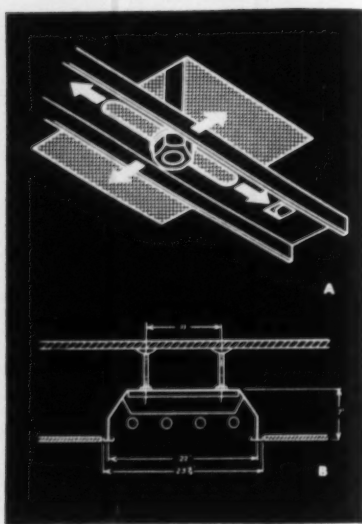
- 1** PARK GATES FLATS, EASTBOURNE
Architect: H. Hubbard Ford, F.R.I.B.A.
Architect-in-Charge: S. Hoyer, M.A.A.
A General view showing the 'Wallspan' installation.
B Detail showing the Williams & Williams Standard Metal Windows.
- 2** EASTBOURNE TERRACE DEVELOPMENT, LONDON
Architects: Cecil H. Elsom & Partners.
Consulting Engineers: Clarke, Nicholls & Marcell.
Quantity Surveyors: Cyril Sweett & Partners.
Contractors: Tersons Limited.
Some of the 2698 Williams & Williams aluminium double-hung windows.
- 3** THE PERMUTIT CO. LTD., EALING
Architects and Consulting Engineers: Husband & Co.
'Aluminex' Patent Glazing in one of the portal framed bays.
- 4** TEMPLE MOOR GRAMMAR SCHOOL, LEEDS
Architects: F. R. S. Yorke, E. Rosenberg, C. S. Marshall, F.R.I.B.A.
North-western facade of the classroom block note the detailing of the staircase cladding.
- 5** C.W.S. STORE, ST. HELEN'S, LANCASHIRE
Architect: G. S. Hay, A.R.I.B.A., Chief Architect, C.W.S. Architects' Department, Manchester.
Architect in design: J. Douglas, A.R.I.B.A.
Six Williams & Williams products have been used in this building.



atlas leads in lighting / suggestions for lighting modular ceilings



atlas modulite



Atlas Modulite fluorescent fittings are designed for use in all types of modular ceilings. They preserve the clean, unbroken appearance of the ceiling, permit complete flexibility in design and are singularly easy to install and maintain.

Two series of fittings exist, the "HM" in lengths from 2 ft. to 8 ft. for use on the 2 ft. module, and "GT" (2 ft. to 6 ft.) for the 1 ft. grid. In both, general wiring can be completed prior to installation of the false ceiling. All fittings fit neatly between joists and ceiling boards: adjustable suspensions (a) make it easy to line them up with conduit downdrops and the ceiling level; and once installed, diffusers, tubes, lampholders and gear can be reached from the underside for maintenance in a matter of moments—as shown by illustration (b). Complementary to the "HM" and "GT" series are Atlas GIO (Water) fittings—extremely shallow fittings for use where lack of space prohibits recessing of a fitting chassis.

Atlas Lighting Engineers are available for consultation at any time, and will gladly call by appointment.



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**This colourful 'Perspex' sink
and double drainer
will not rust and is durable**

Primrose coloured sink and double drainer made by Wokingham Plastics Limited.

More and more modern sink units are being made from 'Perspex' acrylic sheet. This one, made by Wokingham Plastics Limited has been installed in a new house. 'Perspex' will not chip, or rust and is not affected by hot water. It is smooth and easy to clean.

'Perspex' is light and can be heat

shaped to modern designs. It is available in a wide range of fashionable colours. It is an ideal material for kitchen and bathroom fittings in the contemporary home. When made from 'Perspex' the most fashionable sinks and drainers, baths and wash basins are available at a price everyone can afford.

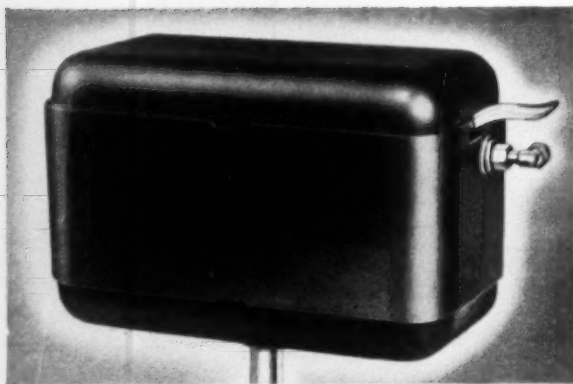
'Perspex' is the registered trade mark for the acrylic sheet manufactured by I.C.I.

'PERSPEX'

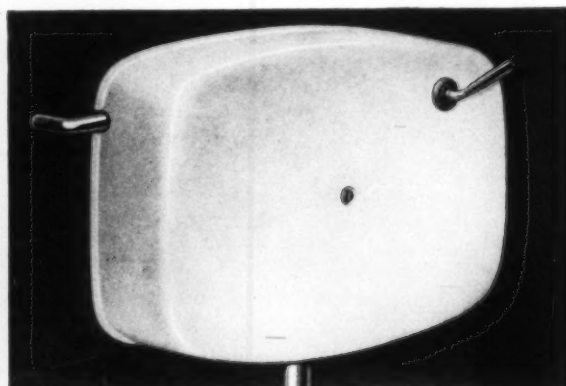
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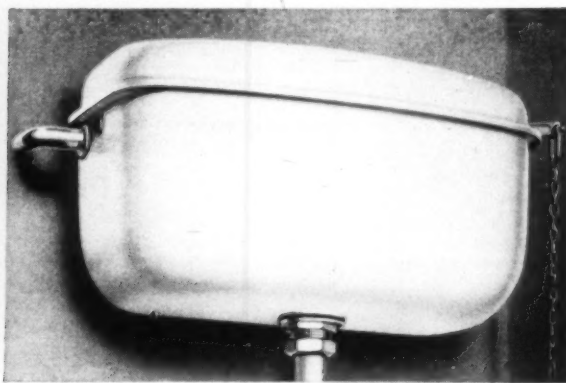




The new Fordham "Raven" in Black Plastic.



Fordham Panel Model "O". Projects only 6 ins. from the wall.

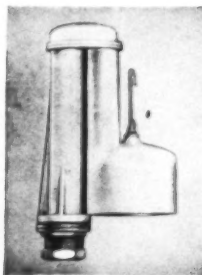


Fordham "Cleanline" high level cistern.

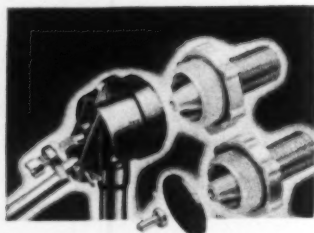


Fordham Polythene Ball Float.

The Fordham All-Polythene Syphon.



The Fordham "Acquasave" long life, non-stick, trouble-free Ball Valves in hard Polythene. Cannot corrode and is unbreakable and quiet in operation. An "Acquasave" is still functioning satisfactorily after being subjected to 10,000,000 consecutive operations at 100 p.s.i. water pressure by a leading water authority.



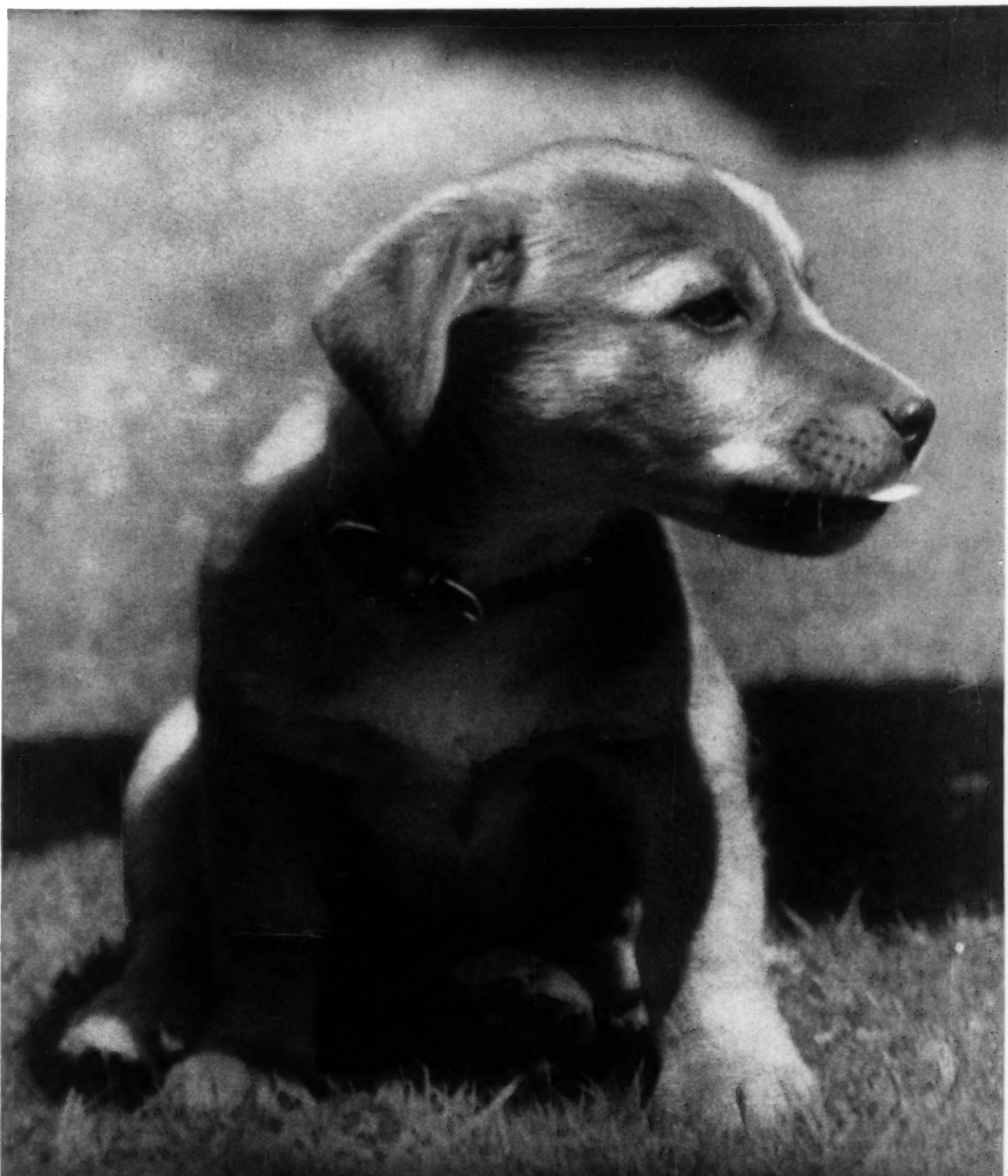
Look to Fordham for leadership in the design and development of Sanitary Equipment. The new range of Fordham "Cleanline" Cisterns—accepted by the Council of Industrial Design for "Design Review"—are the most handsome and least expensive cisterns obtainable today. In White or coloured vitreous finishes to match any scheme of decoration, they are available in Ivory, Primrose or Green at the cost of White. The recent addition

to the Fordham range is the "Raven" in Black Plastic—superbly efficient, beautifully finished, and at an unrivalled low price. All models are fitted as standard with the incorrodible Fordham All Polythene Syphon and Ball Float and are available with the revolutionary new "Acquasave" non-stick toughened plastic ball valve. Illustrated literature will be sent on request.

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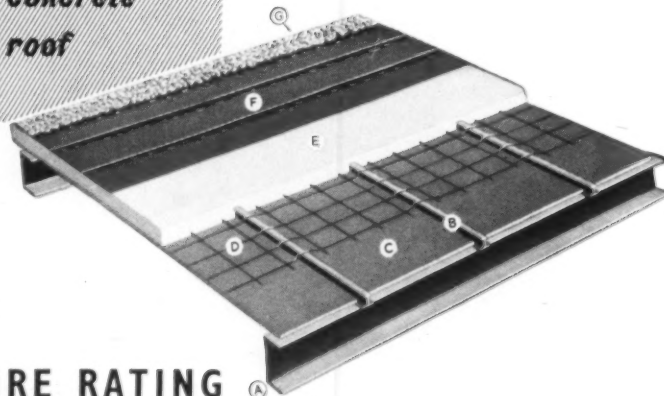
The system permits versatile design and can be adapted for use whether the supporting structural frame is steel or reinforced concrete, or whether the roof is flat, low pitched or curved.

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- (A) Purlin.
- (B) Bulb tees.
- (C) Formboard.
- (D) Galvanised reinforcing fabric.
- (E) Pyrodek gypsum concrete.
- (F) Built-up roofing.
- (G) Gravel finish.



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The Department of Scientific and Industrial Research and Fire Offices' Committee Joint Fire Research Organisation subjected 'Pyrodek' to a standard fire resistance test. An extract from their report reads:—
"A 'Pyrodek' gypsum concrete roof approx. 3 inches thick was subject to a fire resistance test in which the soffit was exposed to the heating conditions specified in British Standard 476: Part 1. The specimen roof provided a barrier to the passage of fire for 2 hours 15 minutes when tested without imposed load on its upper surface. No collapse occurred, no cracks and holes formed through the specimen and the insulation provided by the deck prevented ignition of the bitumen on its top surface. The roof therefore provided fire resistance of the 2 hour grade."

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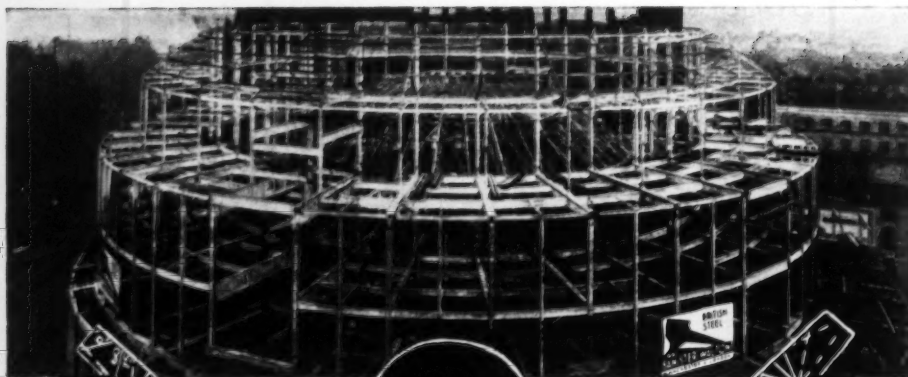
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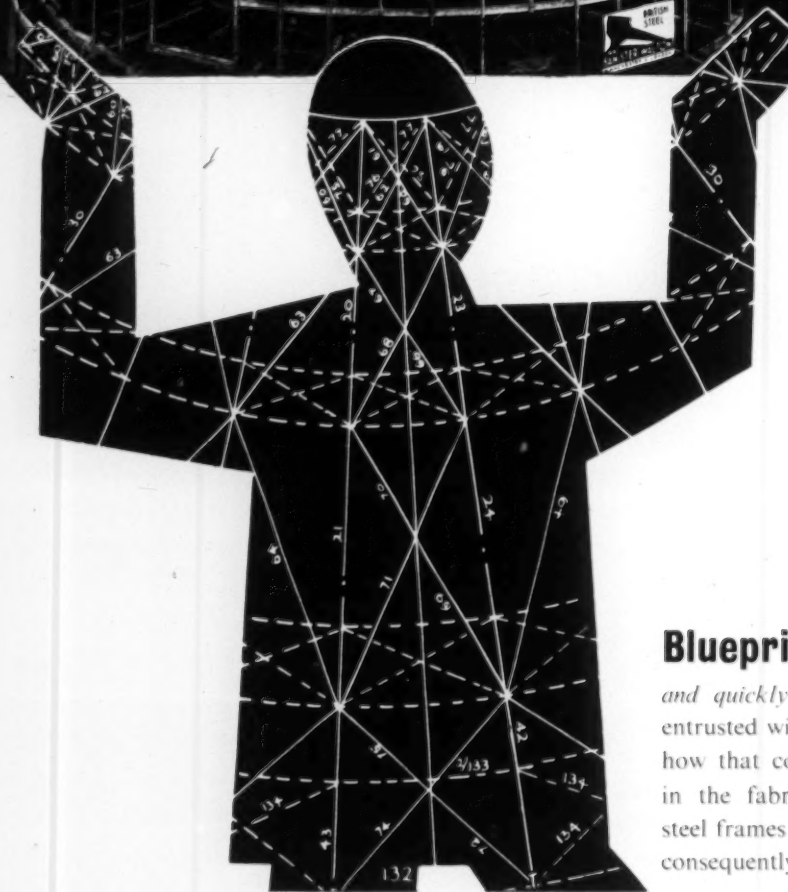
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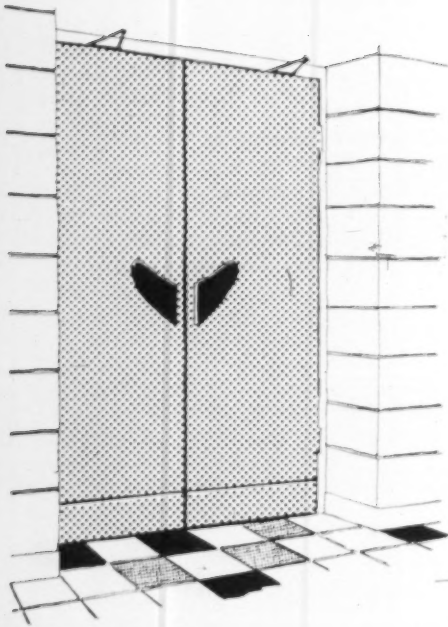
In the planning of the vast, £36,000,000 project comprising the new Factories at Luton and Dunstable, foremost in the minds of the architects and their clients, was the need for Wall and Floor surfaces which would be practical, hygienic, yet decorative—and give lasting service. Ceramic Tiles were used in this instance.



*Architects: Howard, Fairbairn & Partners
Main Contractors: Sir Robert McAlpine & Sons
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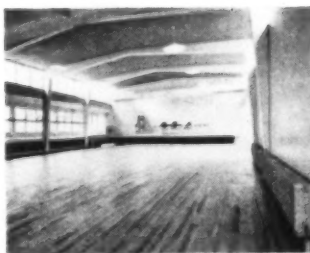
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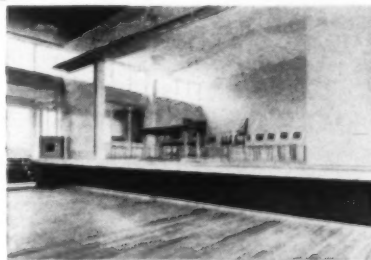
2



1

1. Column Radiators at Mallory Comprehensive School, London County Council. Heating Engineers: Matthew Hall & Co. Ltd.

2 & 3. Wall and column type radiators for the Wincanton Secondary Modern School, Somerset County Council. Heating Engineer: E. R. Carter, A.M.I.H.V.E., Yeovil.



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It was feared that any vibrations might cause further movement and the sloping ground made access difficult to the site.

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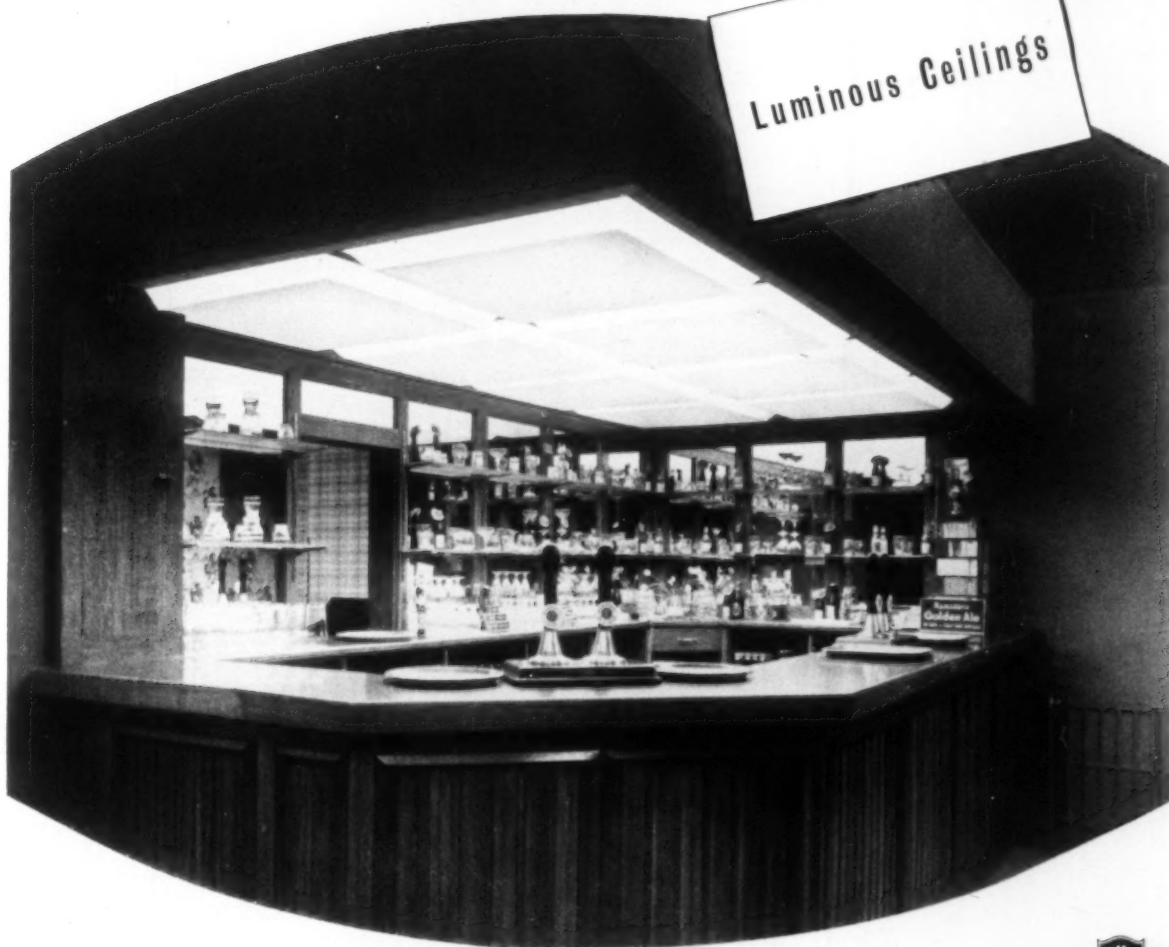
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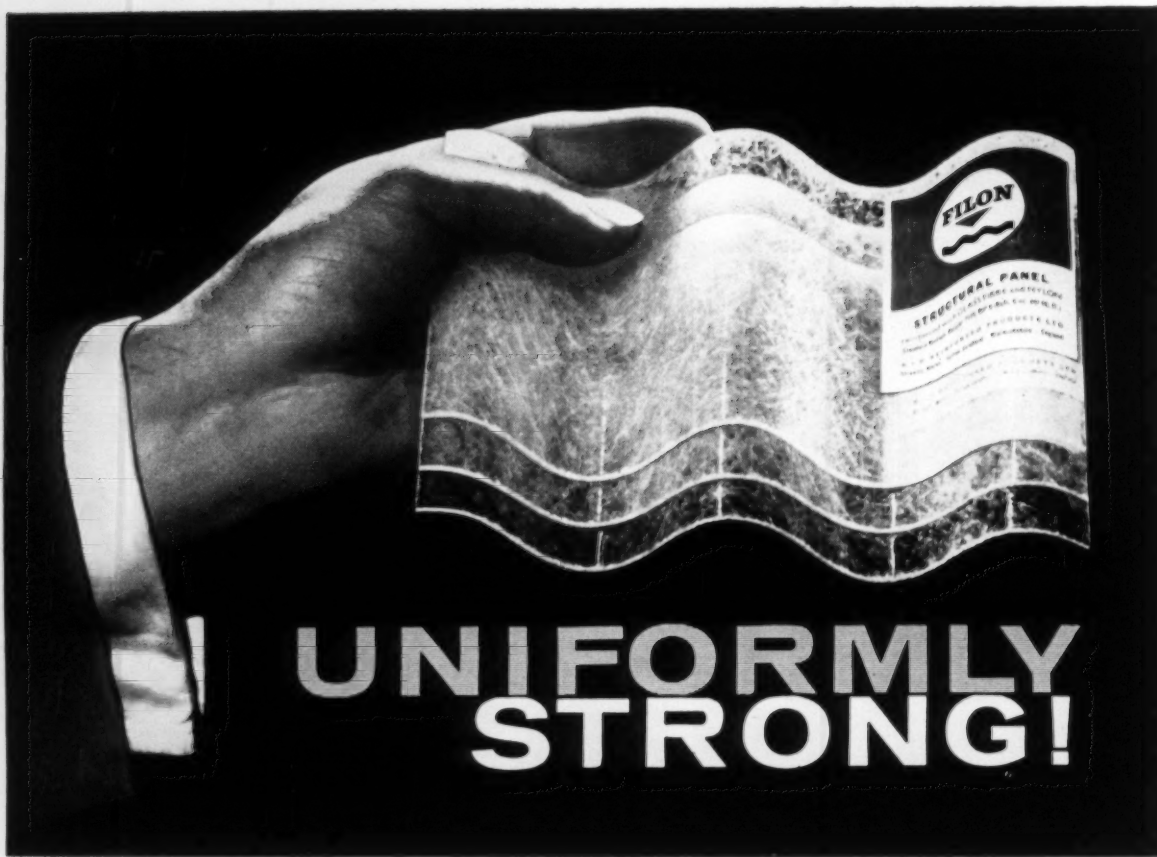
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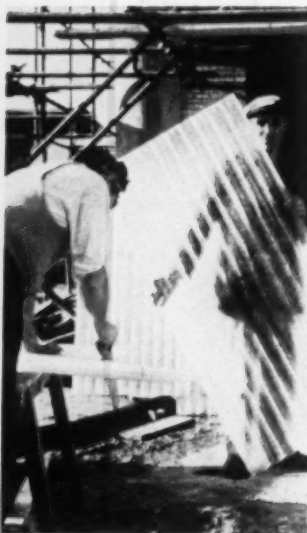


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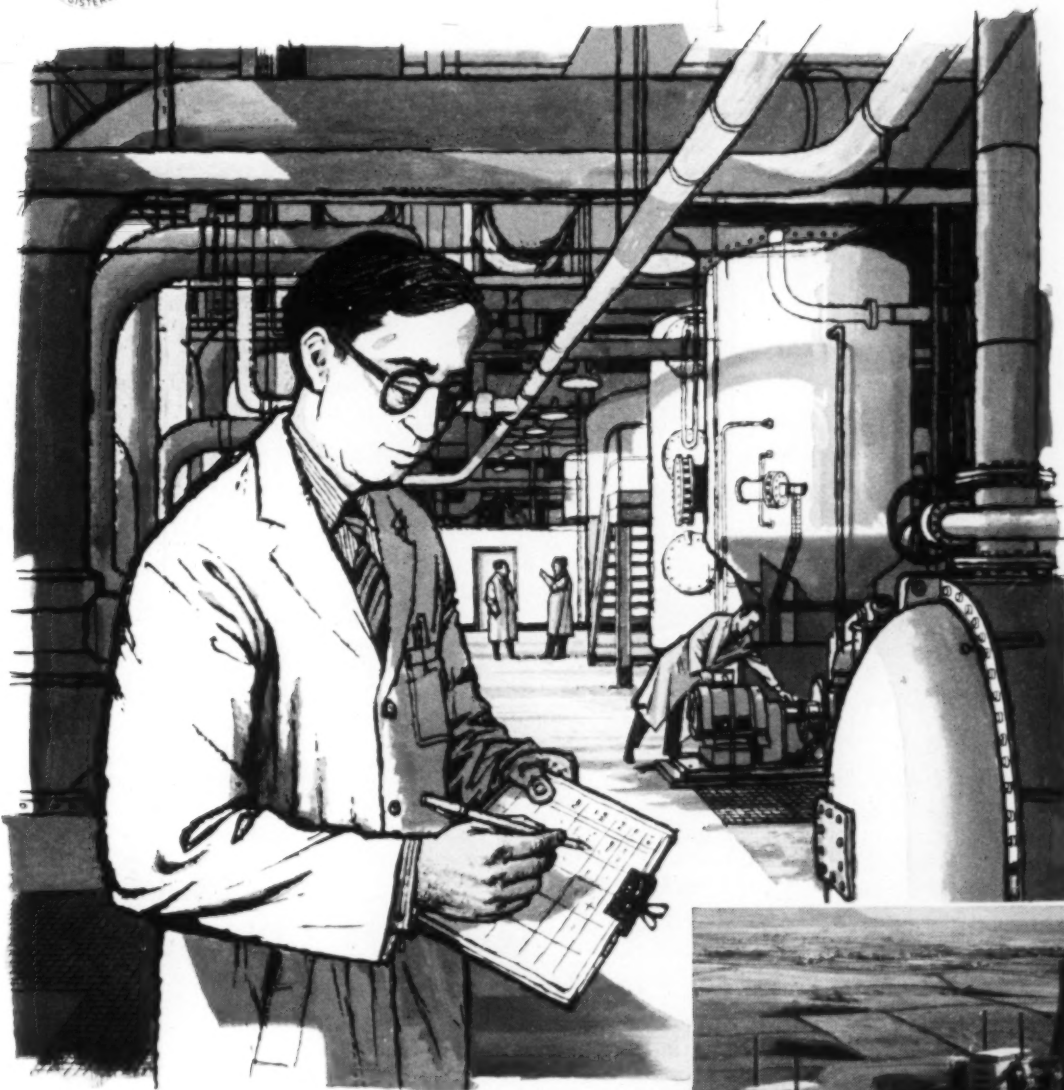
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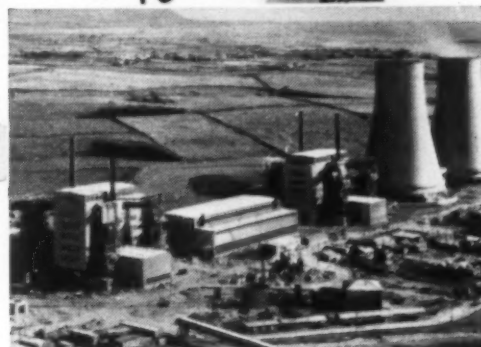
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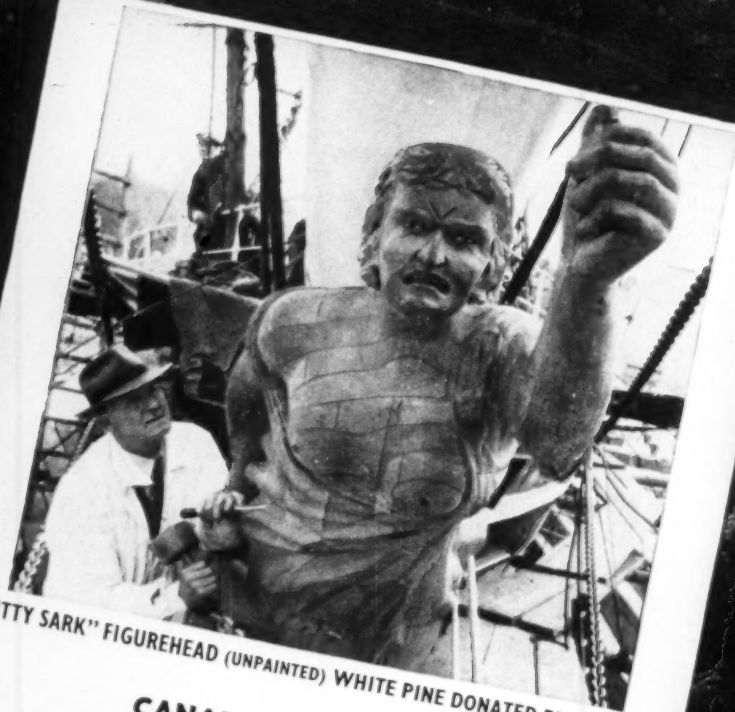
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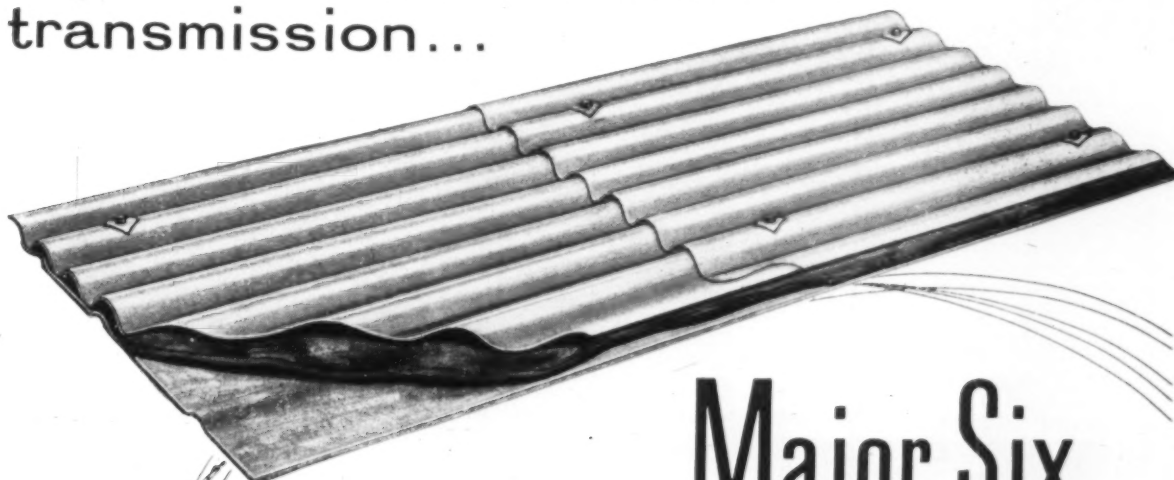
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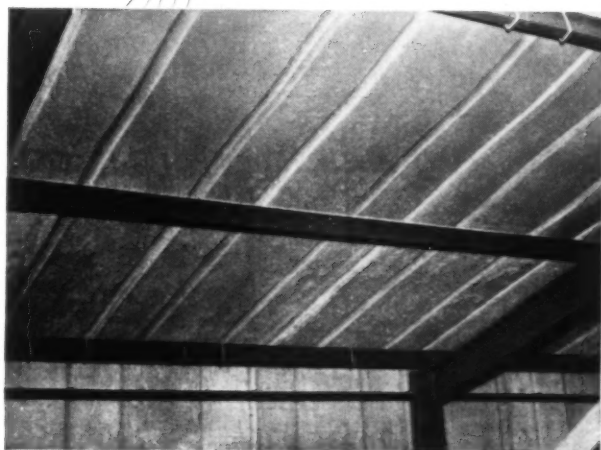


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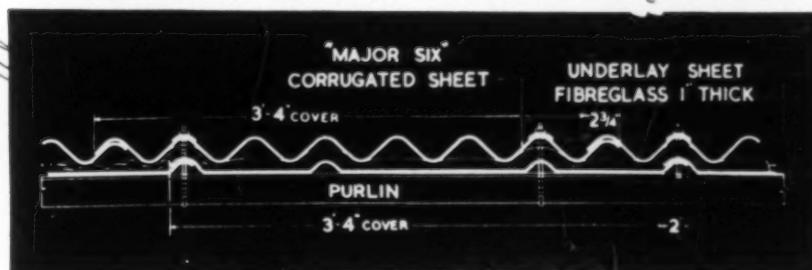
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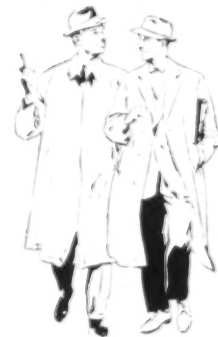
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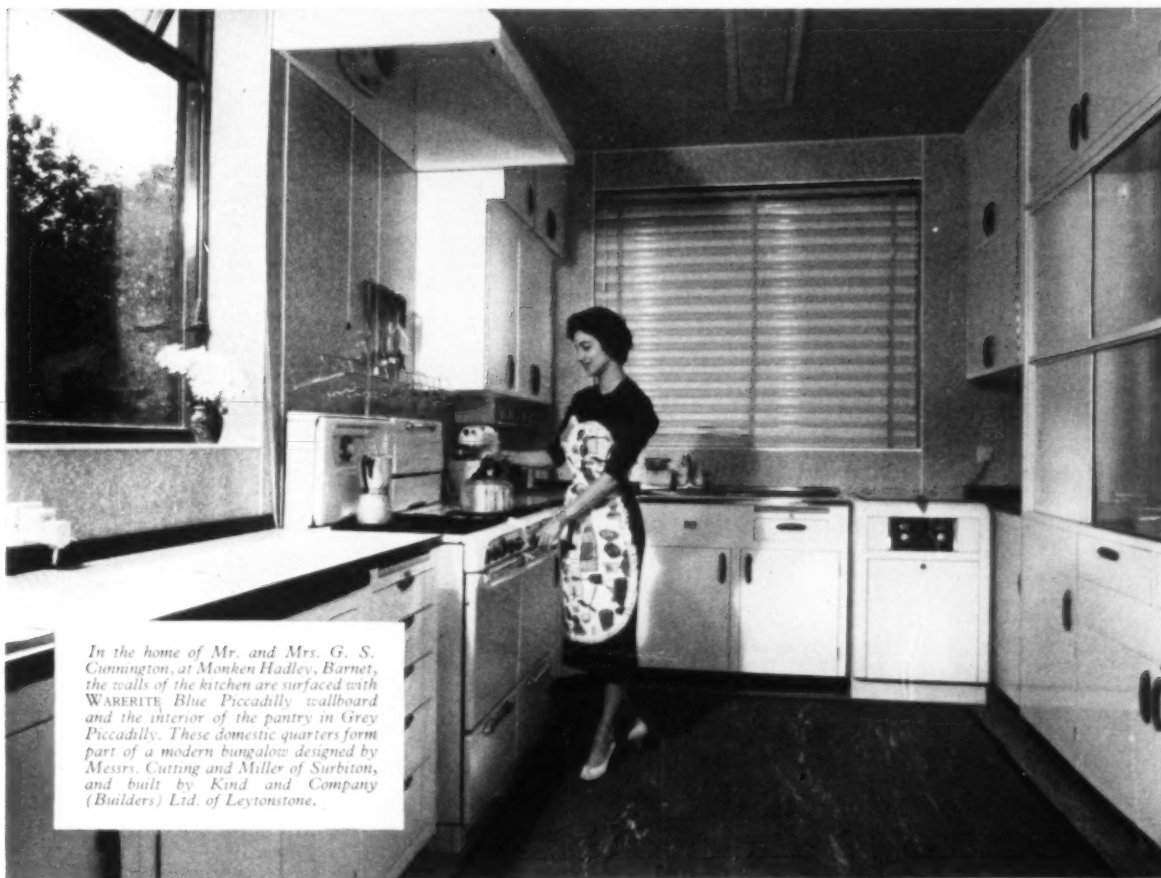
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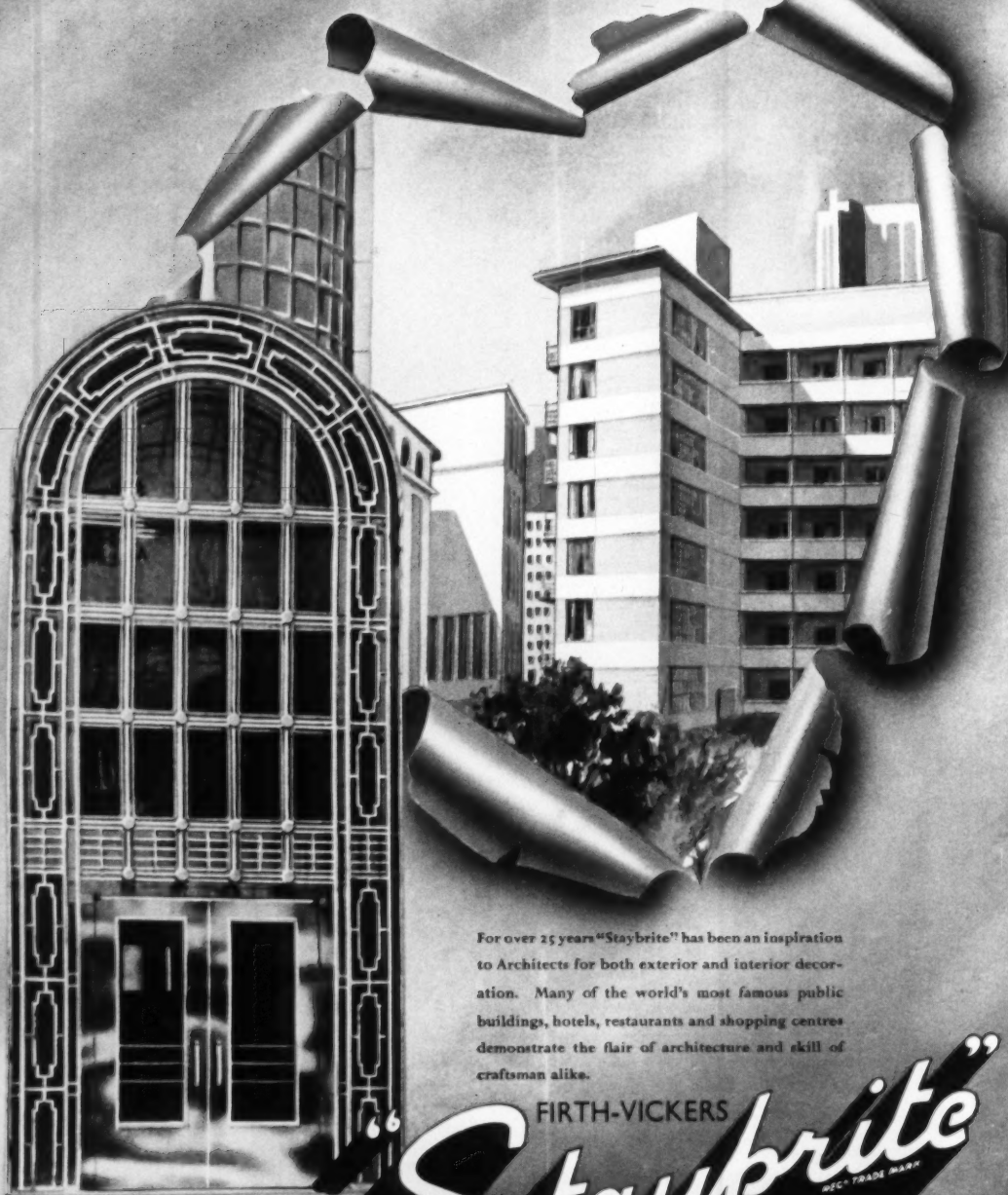


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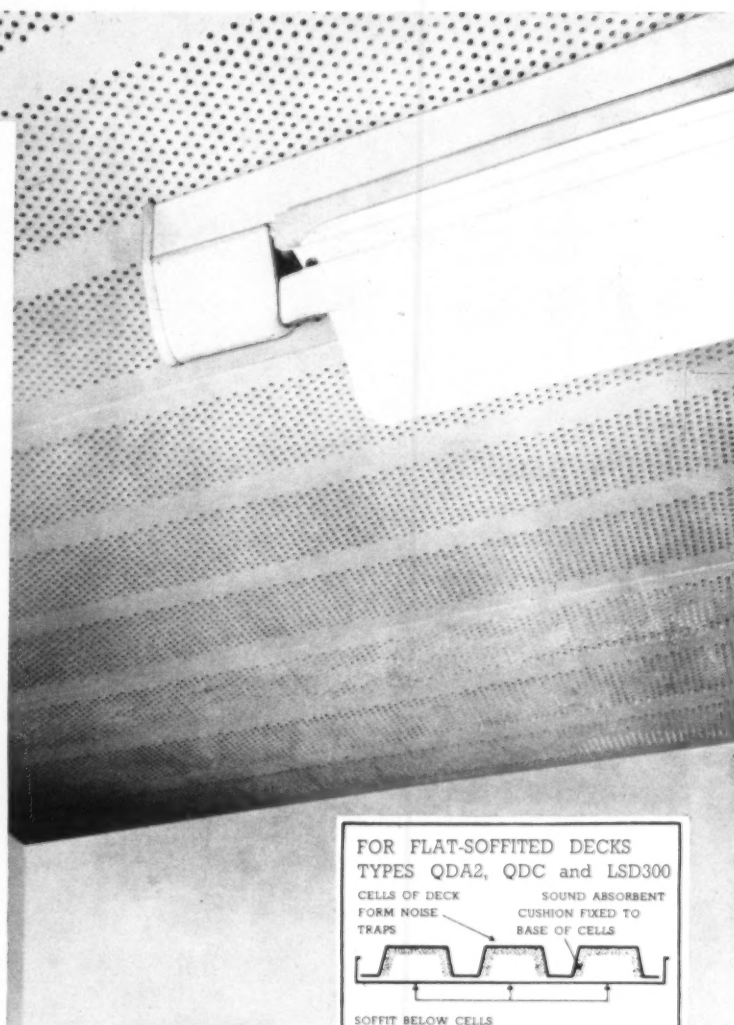
The absorption co-efficients quoted are derived from proving tests carried out at the National Physical Laboratory.

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250 "	0.50
500 "	0.75
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TYPES QDA2, QDC and LSD300

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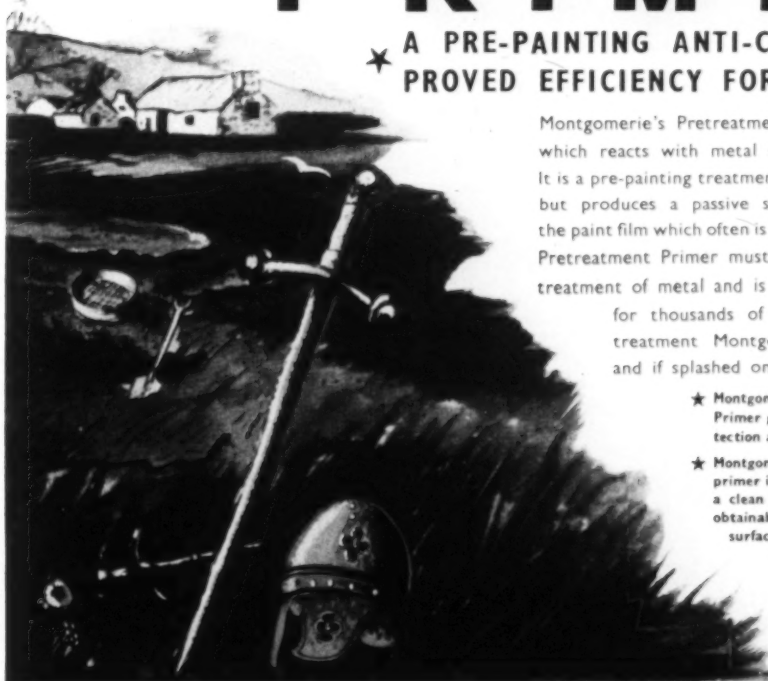
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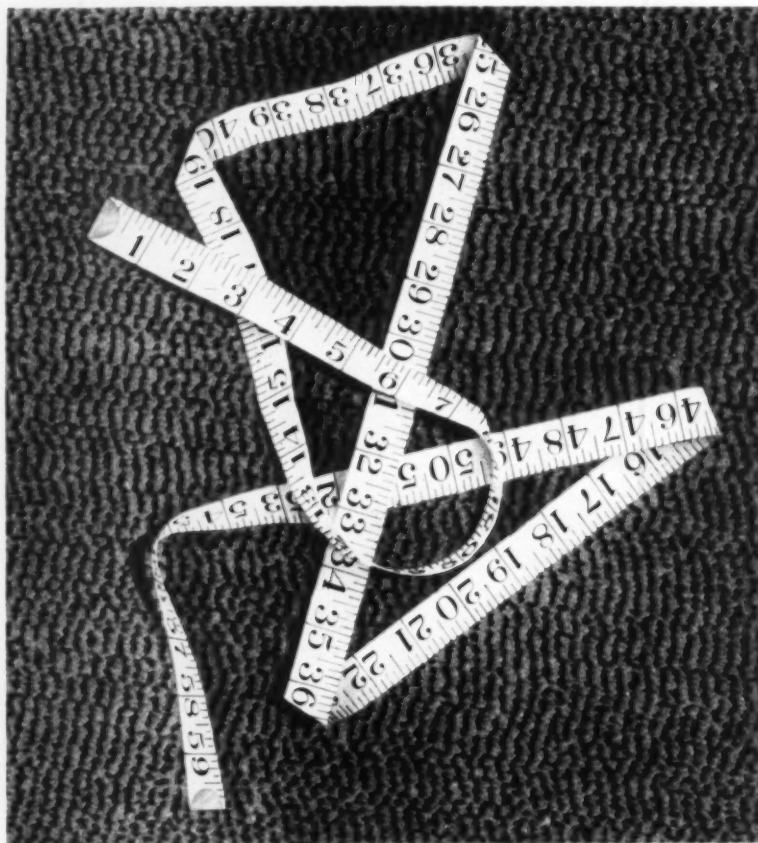


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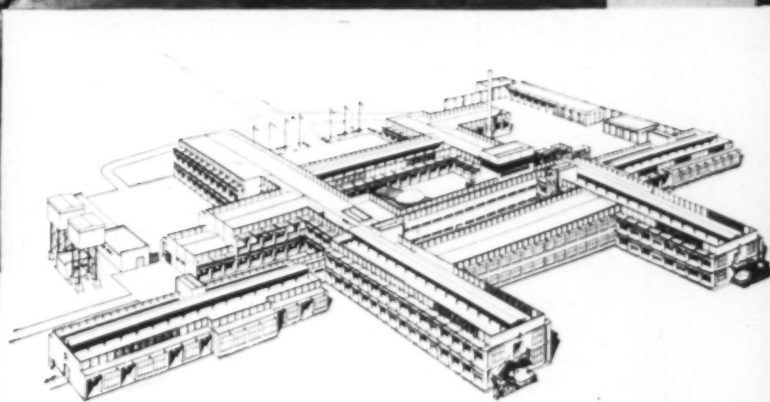
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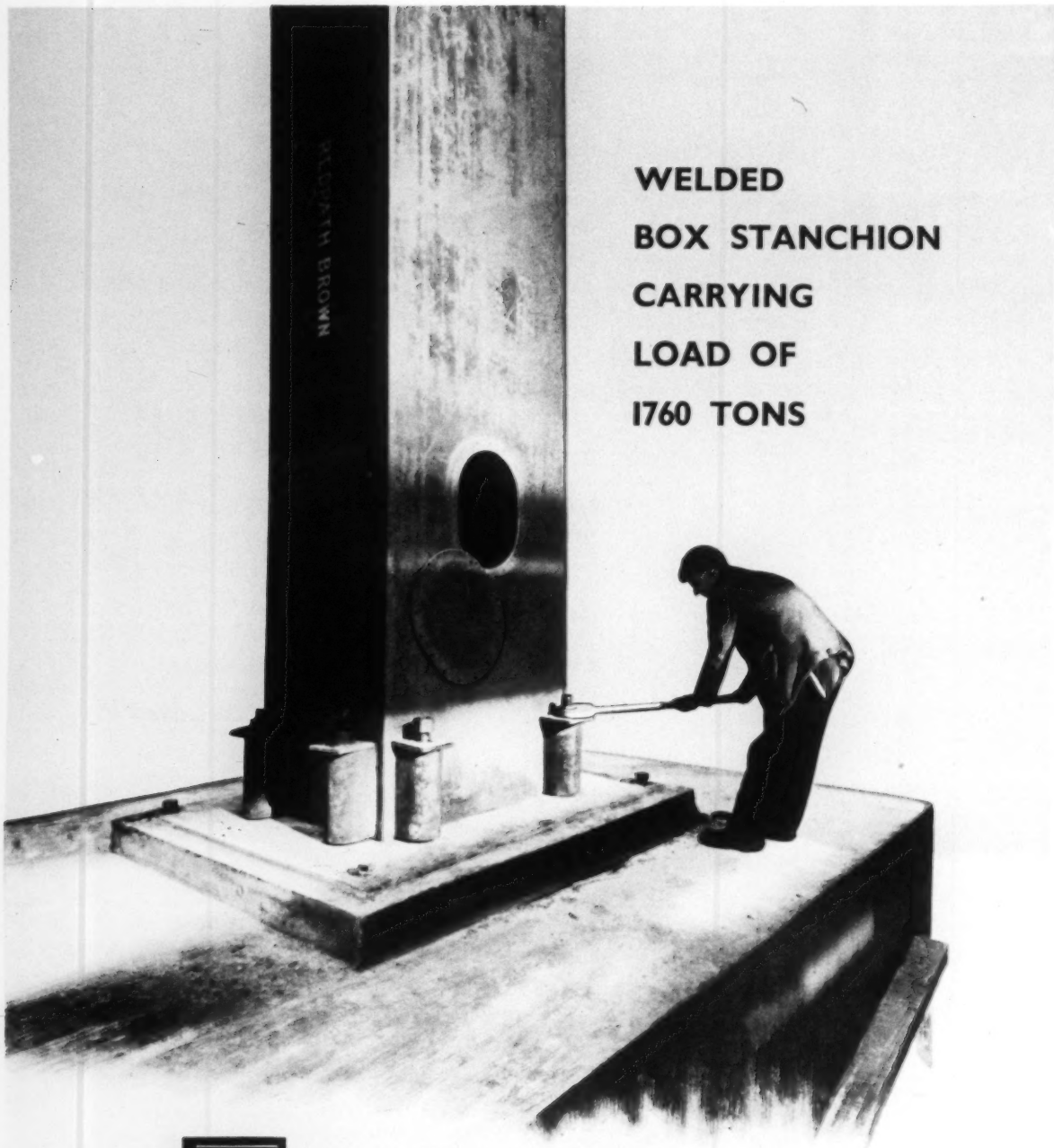
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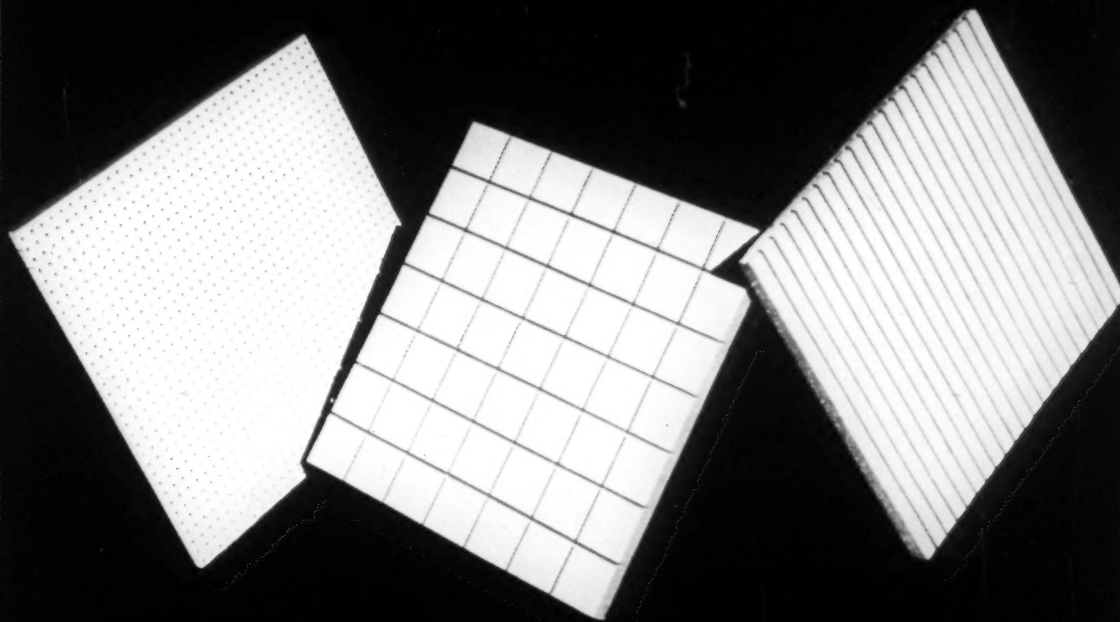
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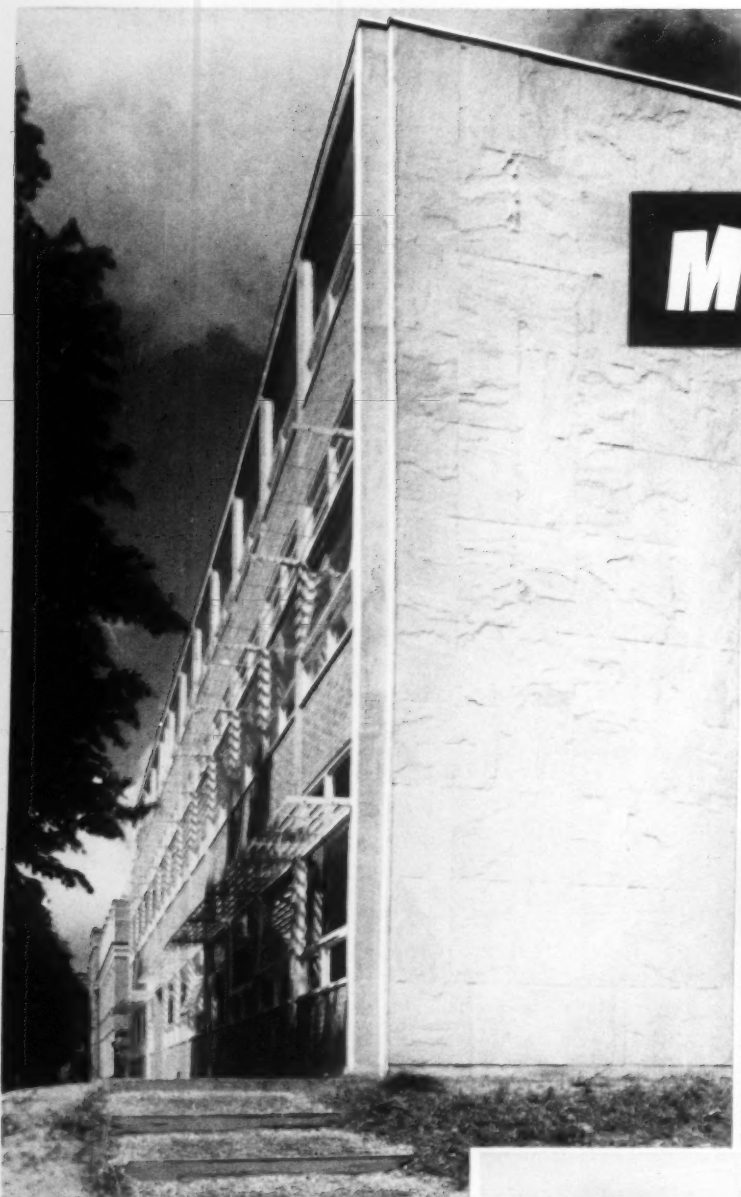
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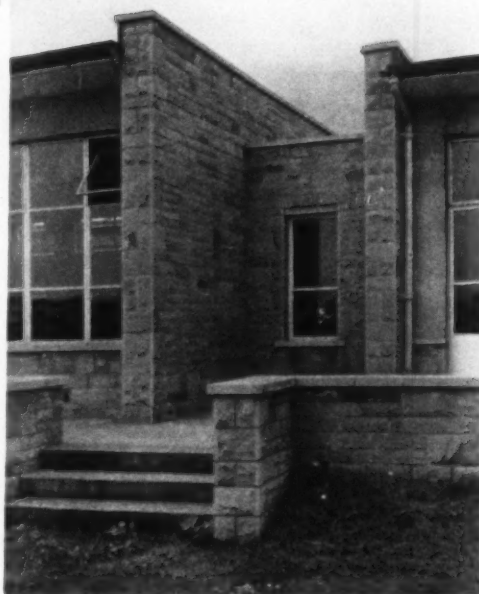


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Above, Left: Riven Stone at Southlands College, Wimbledon. Architects: F. R. S. Yorke, E. Rosenberg, C. S. Mardall, F.F.R.I.B.A. Assistant in charge, Lloyd A. Smith.

Above, Right: Rectangular Garden Paving, Garden Architect: Percy S. Cane, Esq., S.W.I.

Left: Stone Walling, Ling Bob Primary School, Halifax. Architect: K. W. Craven, A.R.I.B.A., Dip.T.P., A.M.T.P.I.

DUCTED WARM AIR

gives a
HIGHER COMFORT STANDARD
than
ANY OTHER HEATING SYSTEM

These are the main advantages of ducted warm air heating:—

Speed of response—adjustment of the room thermostat alters temperature faster than is possible by any other system (e.g. to raise a room of 1500 cu. ft. from night background temperature of 55 F to 'breakfast-time' 60 F takes only 20 minutes, where insulation is to Egerton standards.) As soon as the thermostat calls, the full rated output of the unit is made available.

Flexibility. Speed of response means fuel economy can be effected by turning down the thermostat when rooms are not in use, knowing that the temperature can be restored quickly when required. (This is very valuable in, e.g., schools where intermittent heating is required.) For further economy whole rooms can be "turned off" by closing outlet grilles.

Uniformity of temperature distribution. Low level discharge and high level return allow very low temperature gradients. This avoids that "cold feet and hot head" feeling characteristic of some older systems.

Freedom of planning—by heating the whole building all the enclosed space becomes useful space. Ducts are easily accommodated at planning stage and they make no demands on wall space. Outlet and return grilles are unobtrusive. Ducted warm air makes both "open" and conventional planning easier and offers scope for new ideas.

Clean heating—since warm air is "moved" into the room—instead of merely rising from an outlet—there is no discoloration of walls. (The warm air has, of course, no contact at any point with flue gases.)

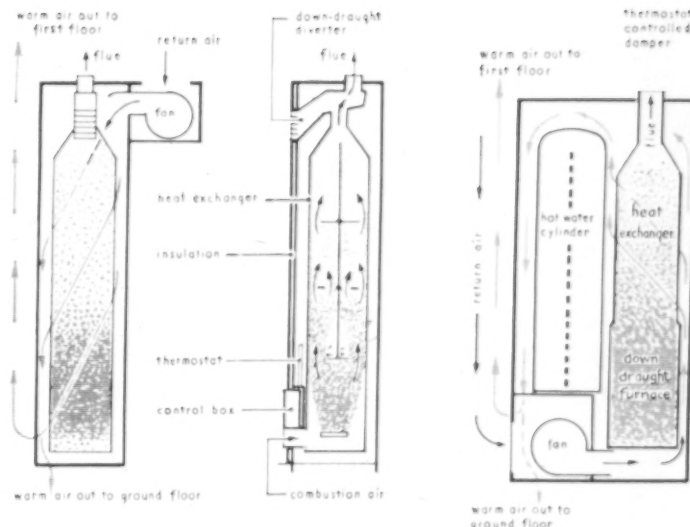
Ventilation—the circulation of warm air is stimulating to the occupants and does away with the "heavy" feeling associated with earlier forms of central heating.

Clothes drying—efficient drying cupboards can be incorporated simply and cheaply. This is of particular value in multi-storey flats.

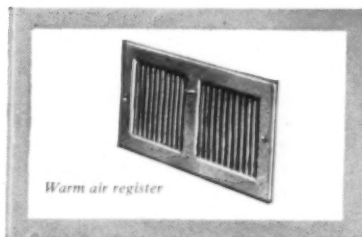
Drying out. A warm air system can be used

DUCTED WARM AIR systems offer all these advantages and, where required, hot water can be produced by utilising the heat of the appliance "when idling". There is clearly a strong case for warm air heating as such—but which particular system? We believe that Radiation Ductair is best able to answer your needs.

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The best DUCTED WARM AIR system is called RADIATION DUCTAIR



to speed the drying out of new buildings for early occupation.

Running costs—Radiation engineers take running costs to be the true efficiency index of an appliance. Here is a short example—many others, in detail, may be seen on request. *Bungalow at Oulton Broad, Suffolk. 1500 sq. ft. insulated to Egerton standard. Heated by Ductair 0.50. Average oil consumption over 2 years (heating period 1 Oct. to 31 March) . . . 625 gallons domestic fuel oil. Standard of heating attained: Living-room 60° F. Bedrooms 55-60° F (day and night averages.) N.B. plus domestic hot water during heating season. Out of season hot water by immersion heater.*

Installation costs—the Ductair system is cheaper than, for example, a fully thermostatically controlled radiator system using comparable fuel. Detailed comparisons are available.

Precision construction—tailored to the particular requirements of each contract, all Ductair is of the highest workmanship. This is essential in producing units of accurately predictable performance to give years of trouble free service.

Nationwide network of Radiation-trained

stockists. To speed design and on-site work, Radiation have established more than 40 fully trained area stockists to provide real "head office" attention near your site. Regional design specialists can be called in by any stockist to meet new or unusual problems. Radiation offers a full after-sales service for Ductair equipment.

10 years' working experience in Britain. After a detailed examination of the best American practice in this field and research, Radiation have developed the Ductair system over ten years. This gives Radiation unrivalled experience under the actual climatic and living conditions peculiar to this country.

50 year background of research and experiment Radiation technicians, for well over 50 years, have been concerned with making better use of fuel. This is reflected in the simplicity of the highly efficient equipment they have evolved. It means too that Radiation engineers have an unusual ability to see their own system against a background of many alternative systems—an understanding particularly valuable at discussion stage.

RADIATION DUCTAIR is more than just another central heating system. It offers a fully integrated service to architects and builders. Its aim is to raise comfort standards and to make possible the more efficient use both of fuels and building space.

DUCTAIR units (of all sizes, powered by Solid Fuel, Gas, or Oil) have been successfully installed in buildings of all kinds—from houses to shops, flats to schools, churches to pubs. Write to us about the sort of buildings that are of interest to you. We particularly welcome new problems—we've been solving them all our working lives.

Radiation

DUCTAIR



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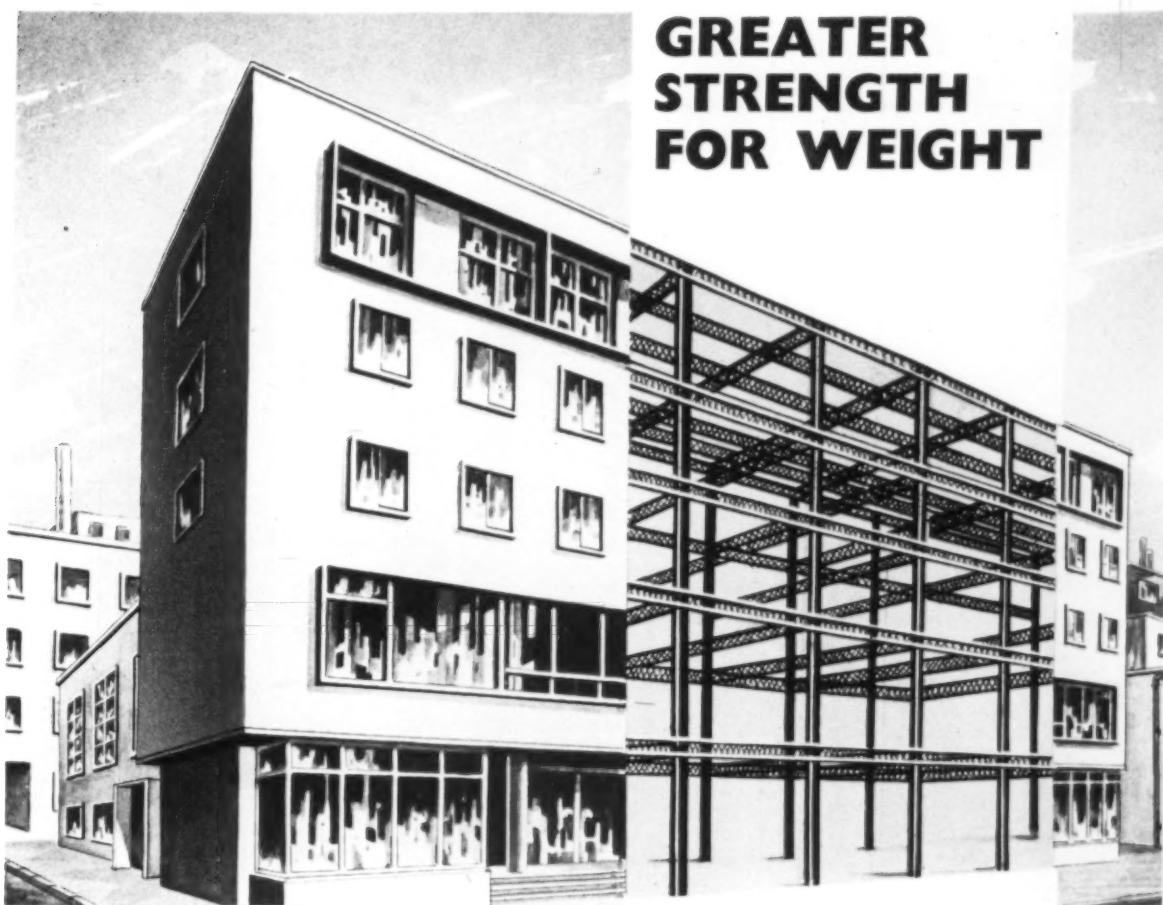
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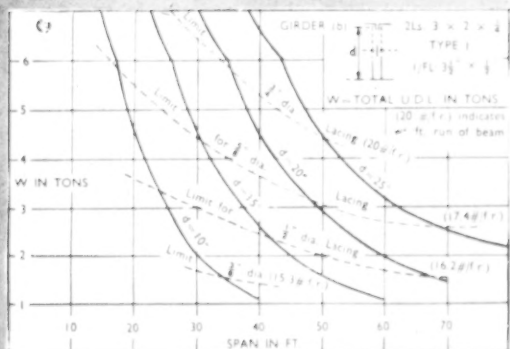
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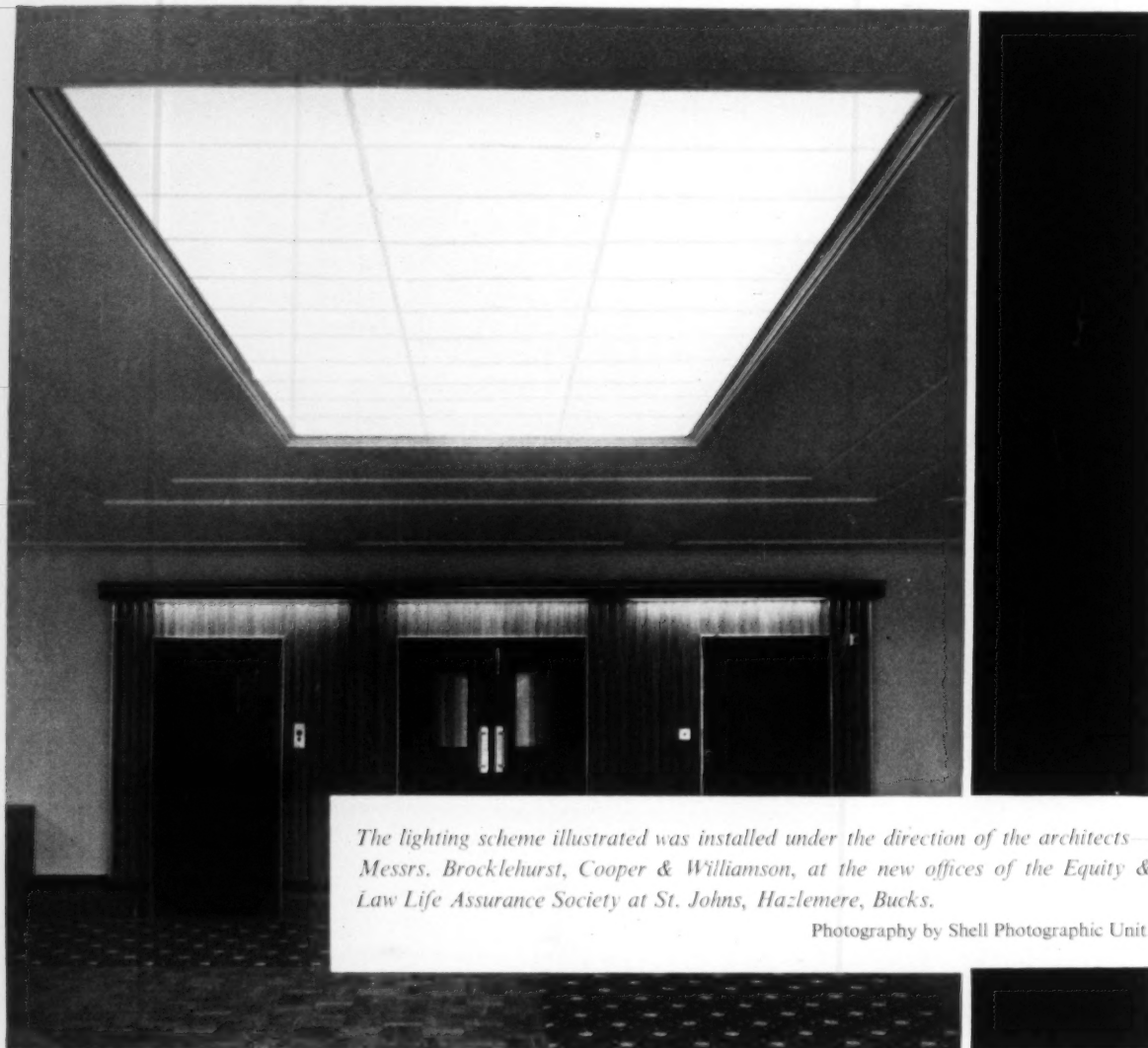
Light but immensely strong, the patented lattice construction of Heycon Girders gives a far higher strength weight ratio than conventional steelwork, and is ideal for long-span roof beams. **Heycon Lattice Girders are time saving too.** They can reduce erection costs by as much as 33½%! Simple two-bolt fixing speeds assembly, and all welded jig construction achieves consistent accuracy, making possible a far greater degree of perfection for both large and small projects.



The Heycon Technical Service will provide, free of costs or obligation, a full assessment of the savings Heycon Lattice Girders can effect in your construction project. Why not consult us? Write to:—

PLASMATIC

INTERLOCKING DIFFUSER PANELS



The lighting scheme illustrated was installed under the direction of the architects—Messrs. Brocklehurst, Cooper & Williamson, at the new offices of the Equity & Law Life Assurance Society at St. Johns, Hazlemere, Bucks.

Photography by Shell Photographic Unit.

*... for illuminated ceilings laylights
and lighting fittings*

Patent Application No. 37491/56. Reg. Design Nos. 882225, 882726.

Material: Extruded light stabilised Anti-static treated Polystyrene.

Colour: Translucent opal and clear.

Size: 10½" wide centres × 4 ft. panels.

Weight: 10 ozs. per square foot.

Light Output Ratio: 54% to 60% opal, 80% to 90% clear.

Suitable for standard suspended ceiling construction with or without ceiling board.

Easily removable for cleaning with damp cloth.

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Desborough Park Road, HIGH WYCOMBE, Buckinghamshire

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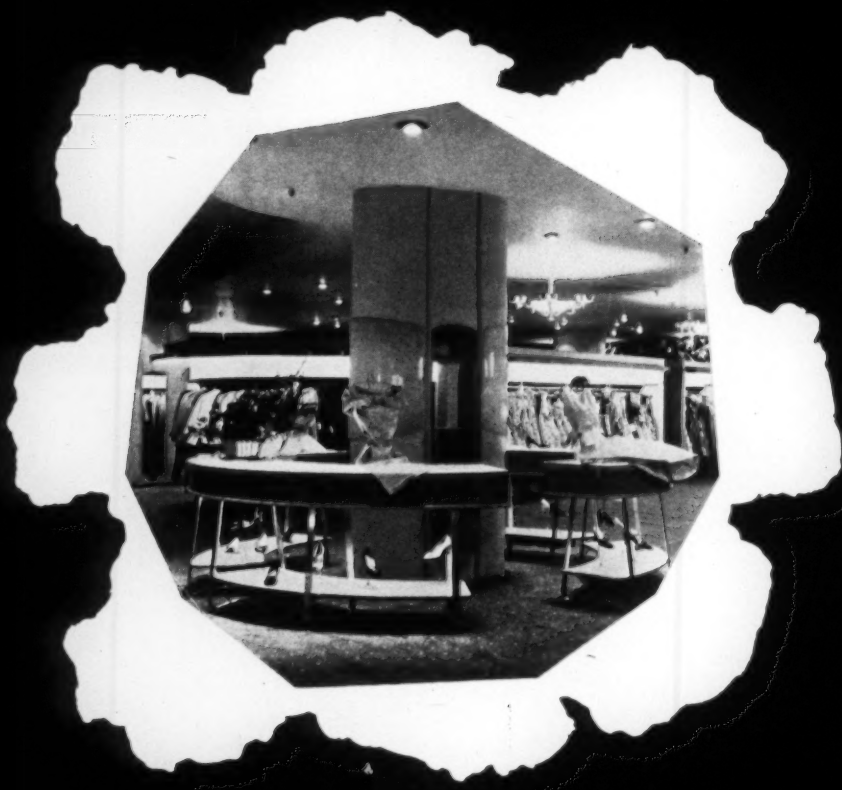
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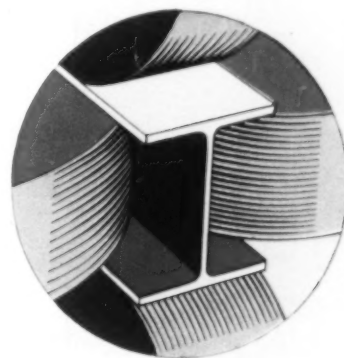
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With this mill we are now rolling 'H' and 'I' sections from 6 inches deep by 6 inches wide up to 36 inches deep by 16½ inches.

Further, this versatile mill rolls all these sections in different thicknesses, so that constructional engineers will no longer need to build up their columns and girders, except for the heaviest work.

Whole 'families' of simple columns can be rolled, in suitably related sections, for multi-storey buildings: beams can be produced (some of them the largest in Europe) with extra flange thickness to carry extra heavy loads. In all these cases the laborious riveting-on of extra flange-plates will be abolished; a simple rolled section will do the job better, saving steel and labour.

Universal beams have opened a new field for steelwork designers, offering far-reaching economies and increasing the efficiency of the structure.

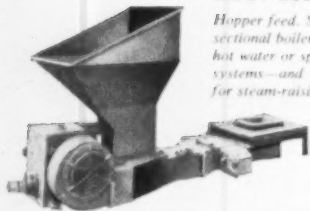


The variation in the flange and web thickness of the new sections is carried out by adjusting, not changing, the rolls. The small diagram shows that adjustment does not appreciably alter the surfaces shaded in red.

B.S. STANDARD BEAMS, CHANNELS AND ANGLES WILL STILL BE AVAILABLE
EARLY DELIVERY OF THE FULL RANGE OF SECTIONS

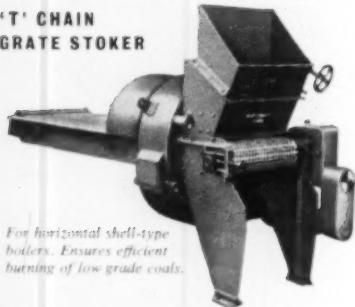
DORMAN LONG

RILEY ROBOT



Hopper feed. Suitable for sectional boilers in domestic hot water or space heating systems—and vertical boilers for steam-raising.

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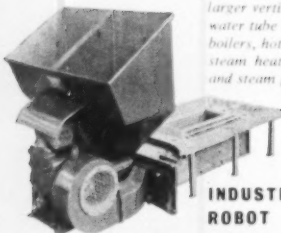


For horizontal shell-type boilers. Ensures efficient burning of low grade coals.



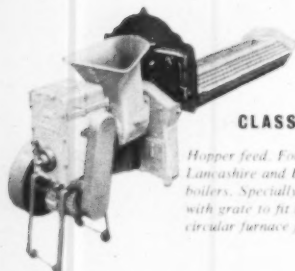
DIREKTO

Bunker feed. For sectional boilers in domestic hot water and space heating systems. Also for vertical boilers used in steam-raising. Feeds direct from bunker to boiler below floor level.



Hopper feed. For the larger vertical boilers, water tube and locomotive boilers, hot water and steam heating systems and steam processes.

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The last disastrous lathing
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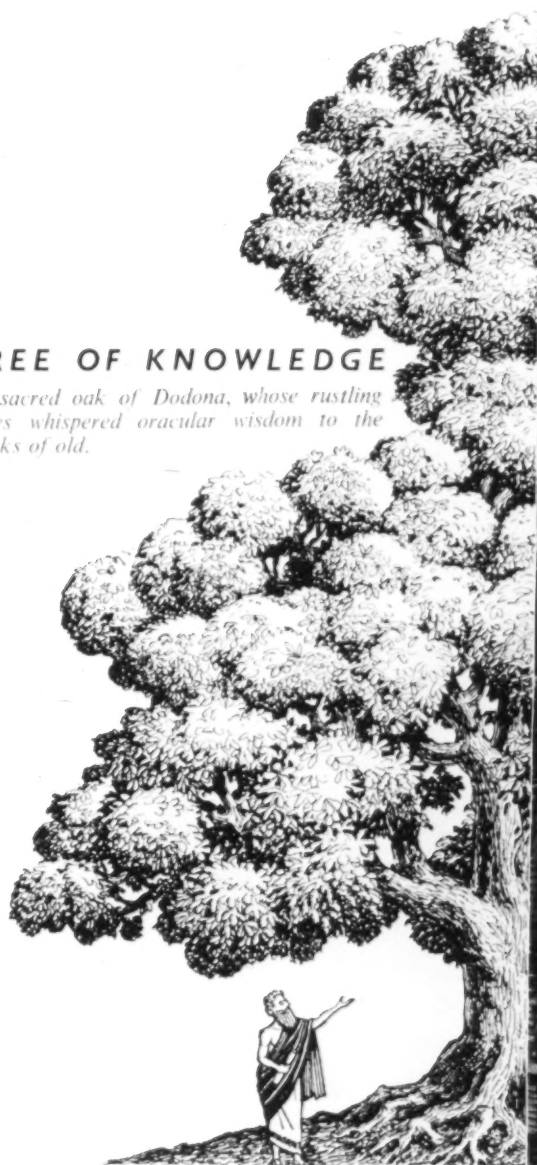
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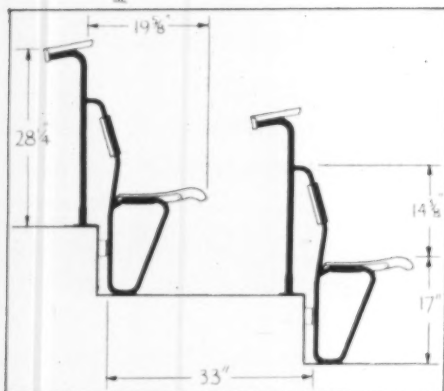
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THE COMPANIES OF THE GLIKSTEN GROUP: Hardwoods: J. GLIKSTEN & SON LIMITED. Softwoods: MEREDITHS LIMITED. Plywood: THE NATIONAL PLYWOOD CORPORATION. Decorative Veneers: J. GLIKSTEN & SON LIMITED. Building & Insulating Board: GLIKSTEN BUILDING MATERIALS. Doors: GLIKSTEN DOORS LIMITED.

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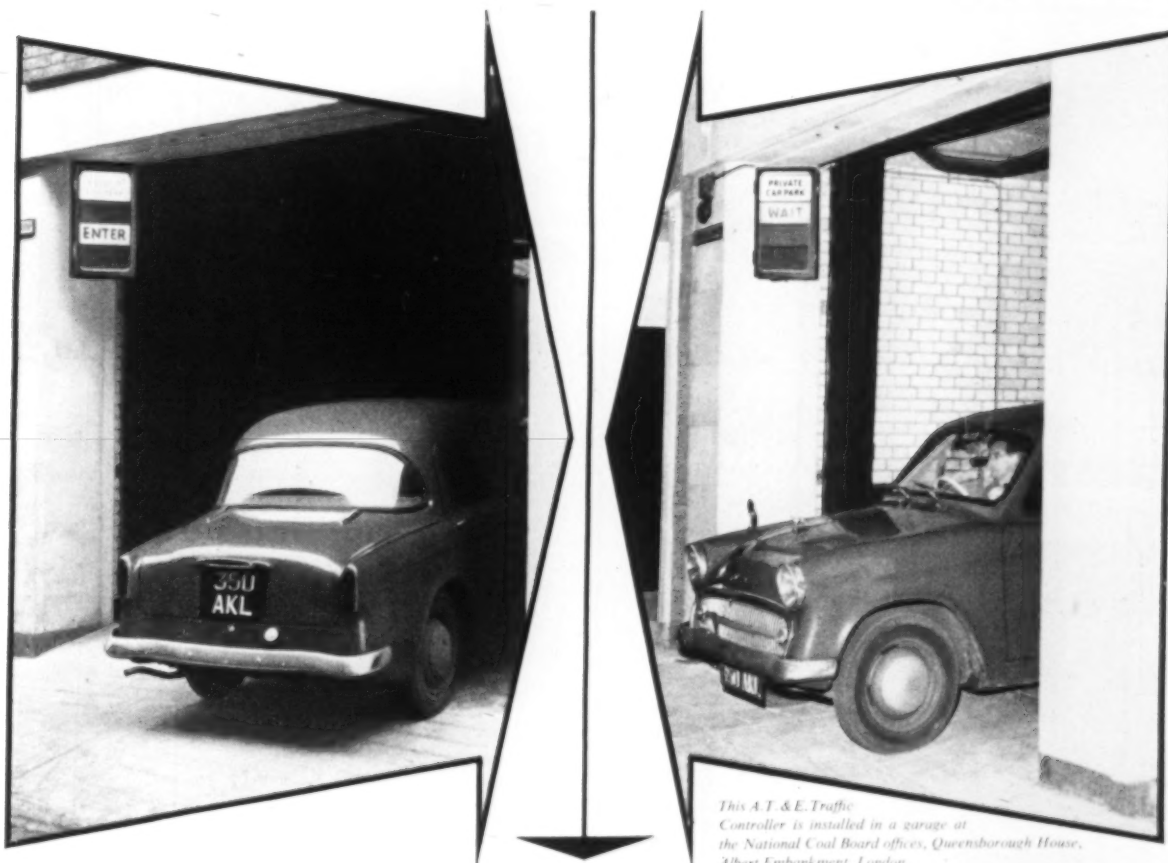
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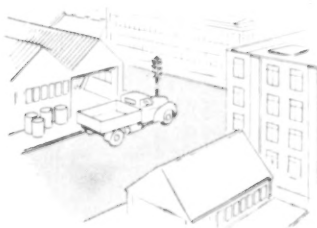
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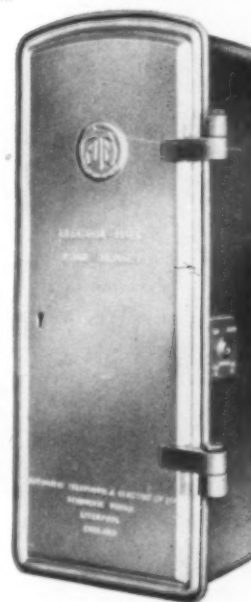
Similar types of controllers are available for effective circulation of transport on factory estates.

At refineries, particularly, they provide that additional degree of safety which is so necessary.

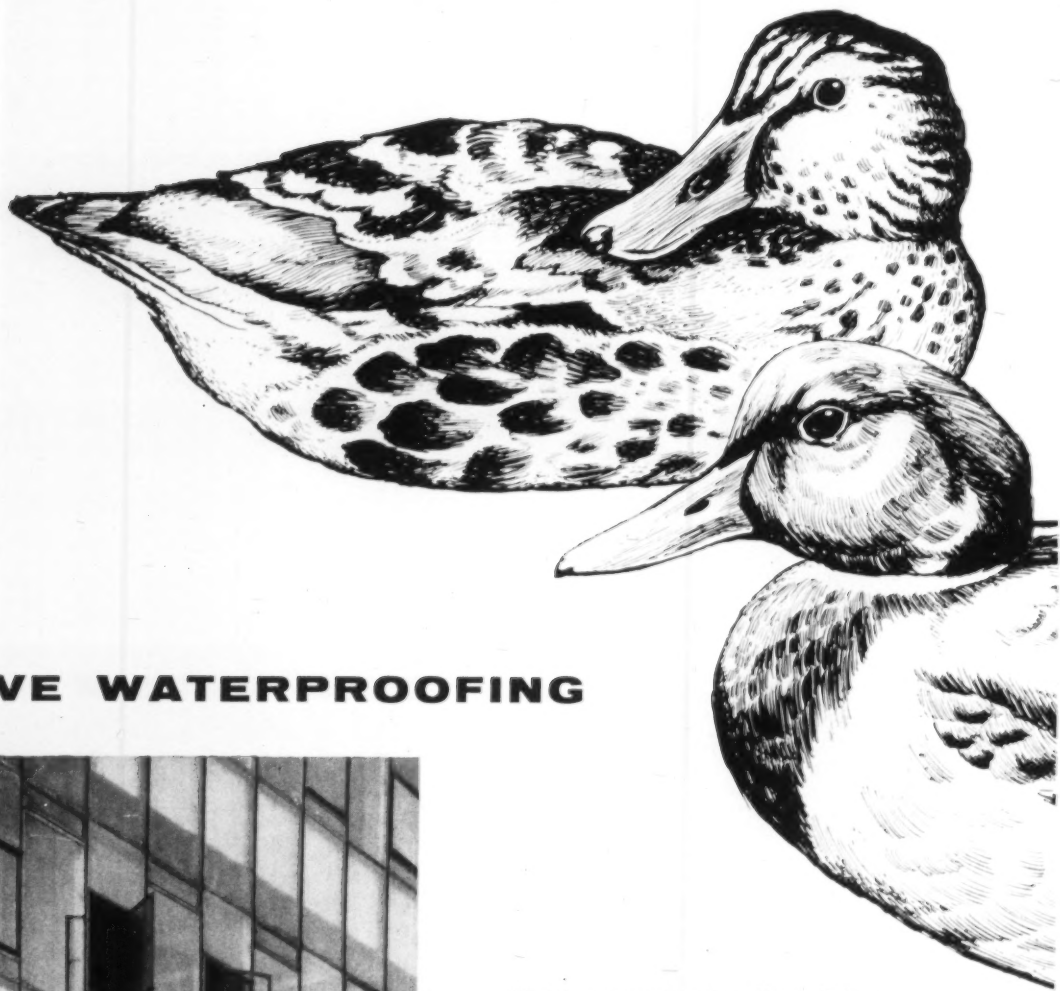


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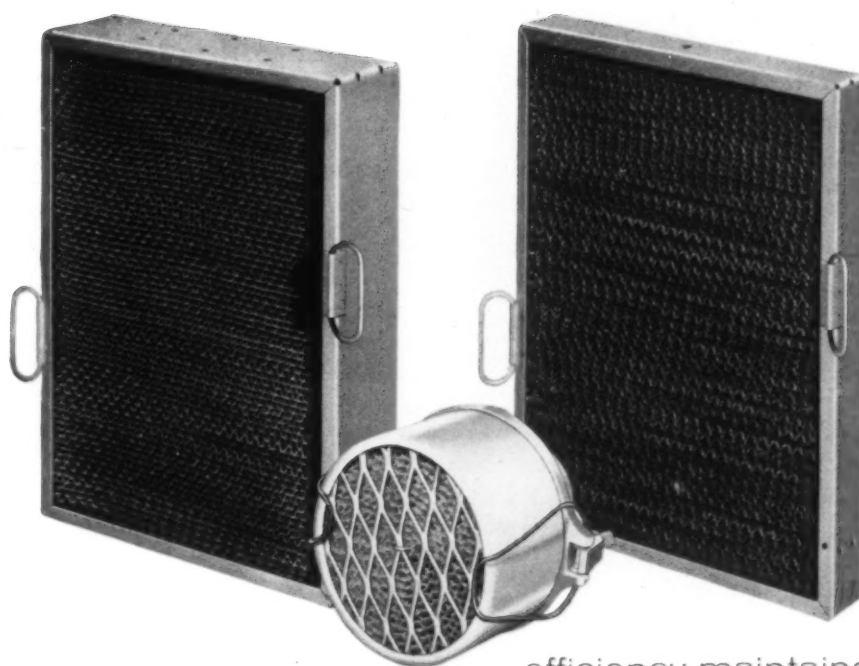
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Branches at Manchester (Blackfriars 3382/3), Bristol (24766),
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CENTRE
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These filters are available from stock in a variety of standard dimensions

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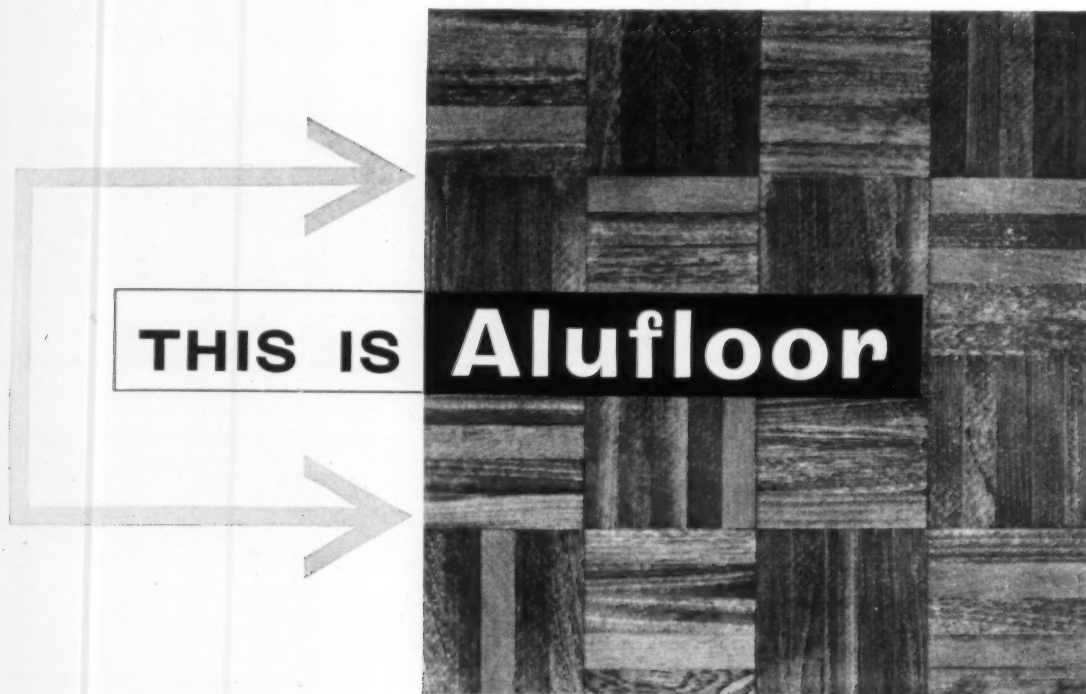
interpose an INTERMIT Far-Air filter

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Alufloor is *not* expensive. It provides
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BECAUSE

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BECAUSE

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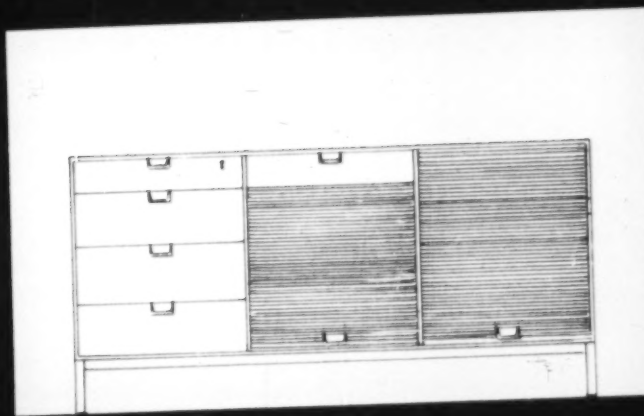
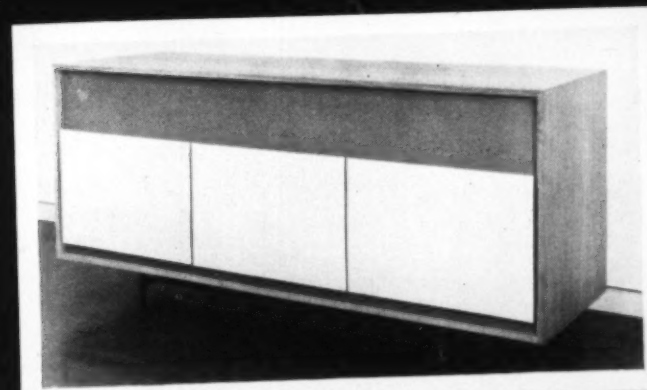
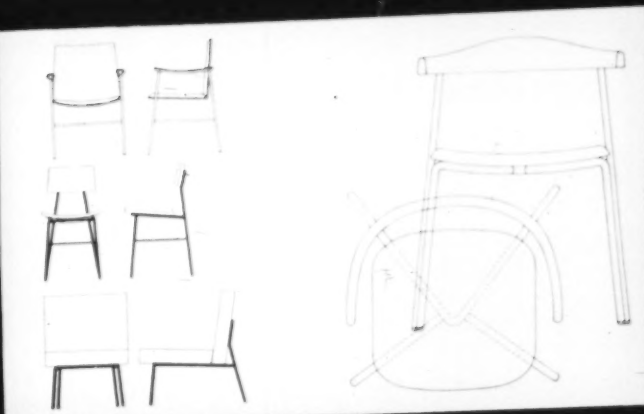
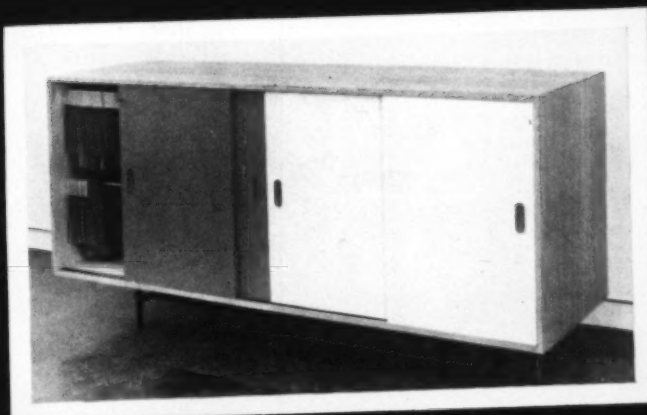
Alufloor

British Patent No. 146791

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The Contract for all the special and the majority of the stock furniture for the new retail offices of WH Smith & Son Ltd. was awarded to Conran Furniture.

The interior of these offices was designed by THM Partners, who also designed the cabinets for lateral filing systems and general storage which are illustrated in the photographs.

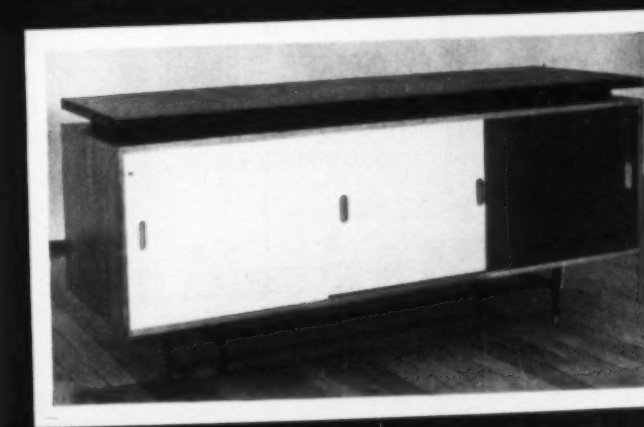
The drawings show general office furniture from the Conran range of desks, cabinets and seating.

Conran Furniture can supply furniture for all purposes, from one of the most comprehensive modern ranges produced in the United Kingdom. We are also fully equipped to undertake the construction of complete office interior schemes.



Catalogues and prices and further information of Contract services from the Showroom,
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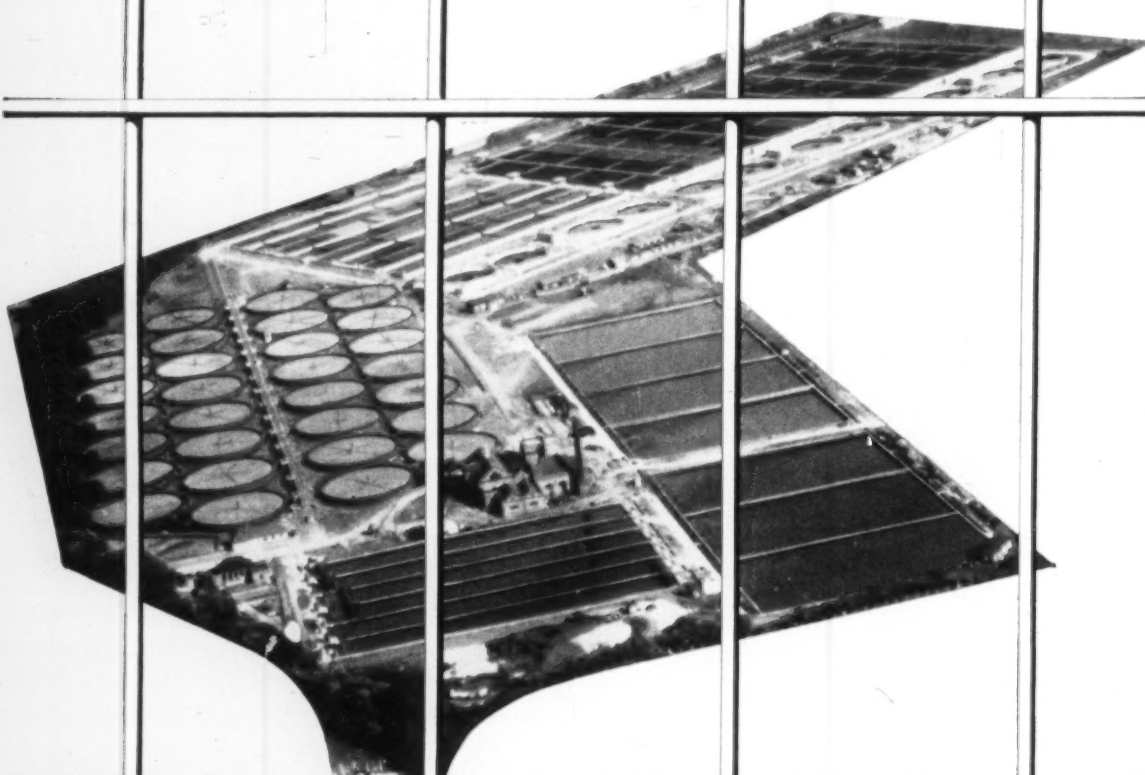
This advertisement is complementary to the description on Page 392 of this issue of 'Architectural Review'.



Maxweld reinforces it

The reinforcement fabric used in the reconstruction of the Derby Corporation Sewage Disposal Works at Spondon was supplied by Richard Hill. When you require reinforcements, get the same prompt service by ringing the

Maxweld Office in your area. They will give you all the facts on the type and quantity of fabric you'll need plus a rough idea of the cost. And they're backed by the *Richard Hill Design Service* who can then draw up more detailed plans and estimates. Ring Middlesbrough (2206), London (Mayfair 3538), Birmingham (Midland 5625), Manchester (Central 1652), Leeds (2-7540), Bristol (24977), Glasgow (Central 2179).



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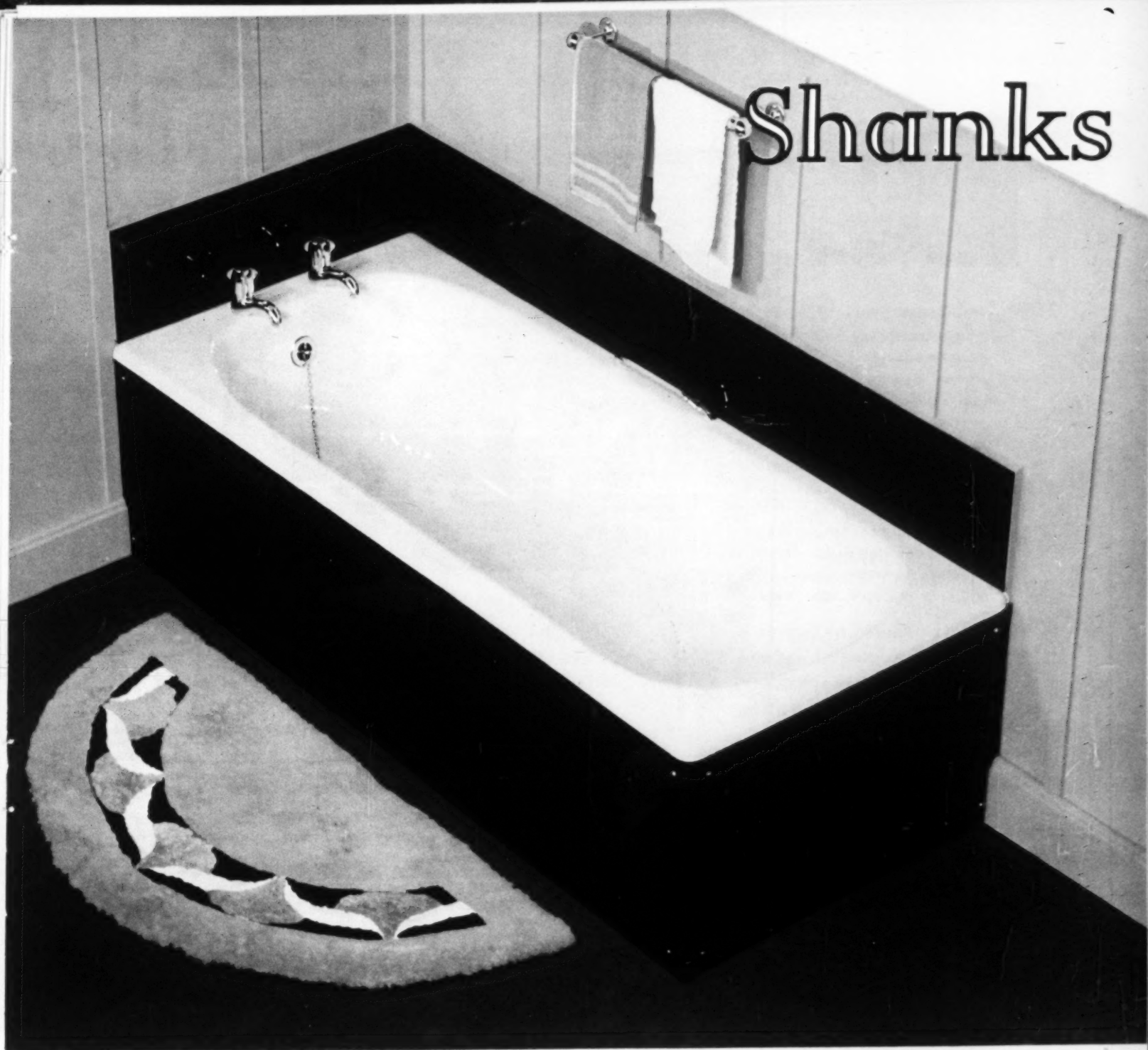
Newport Wire and Rolling Mills, Middlesbrough, Yorkshire. Tel: Middlesbrough 2206

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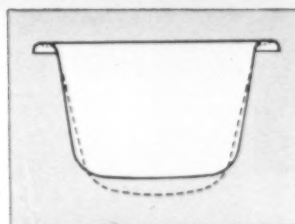
Shanks



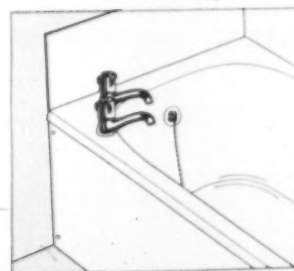
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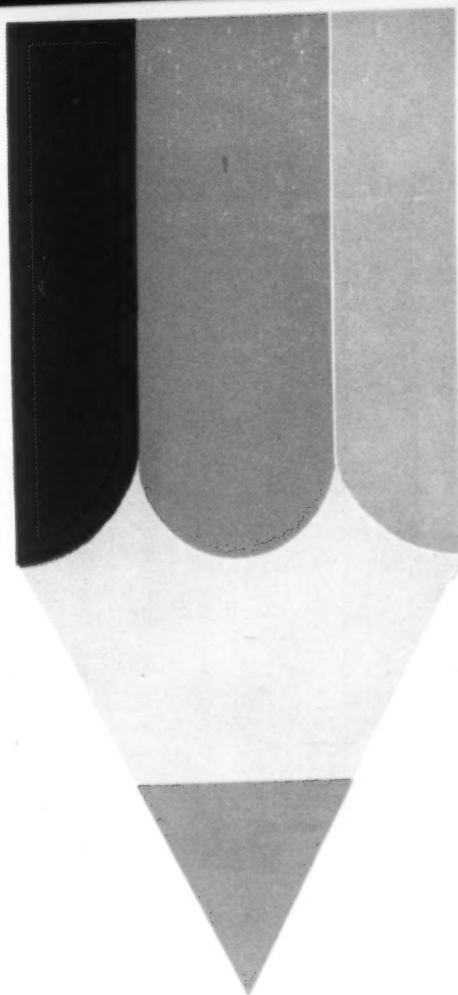
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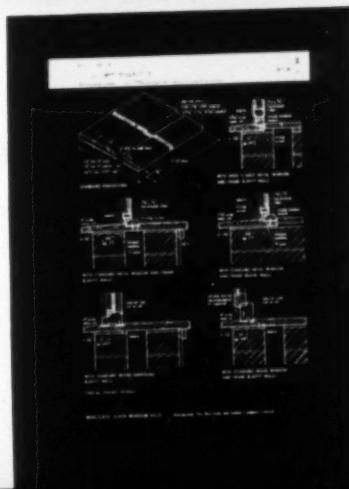
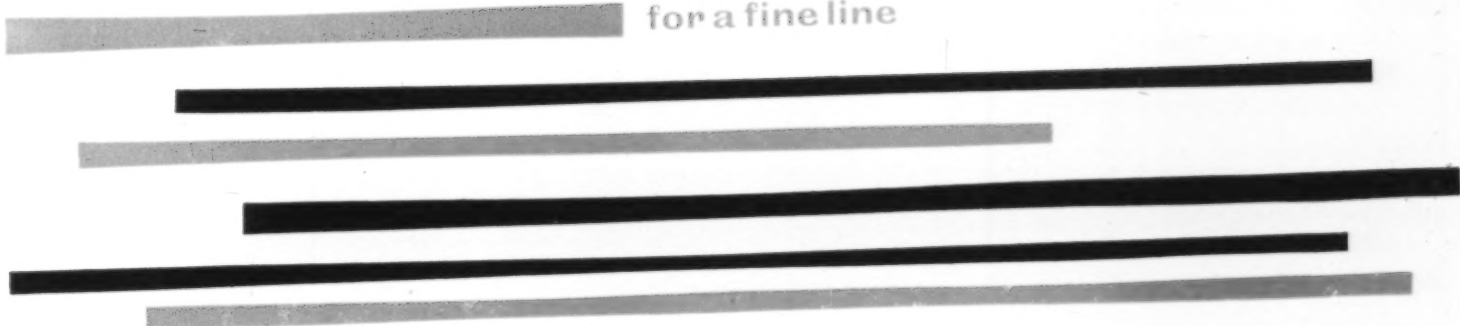
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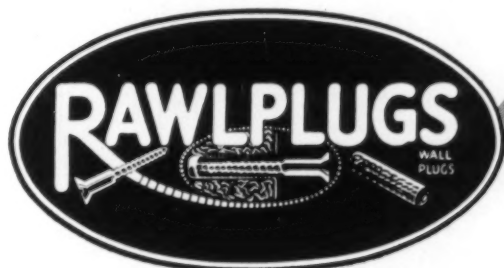
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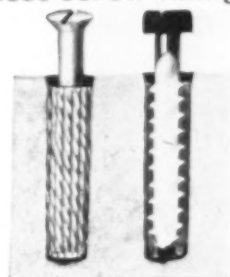
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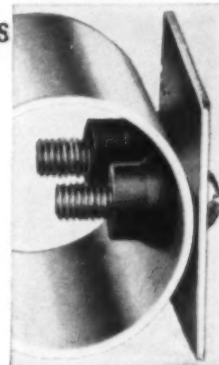
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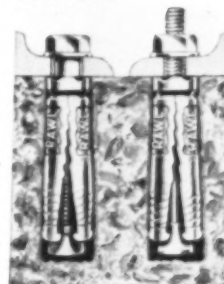
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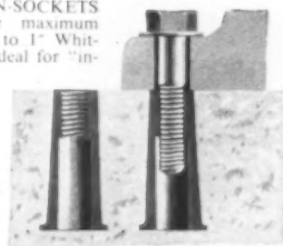
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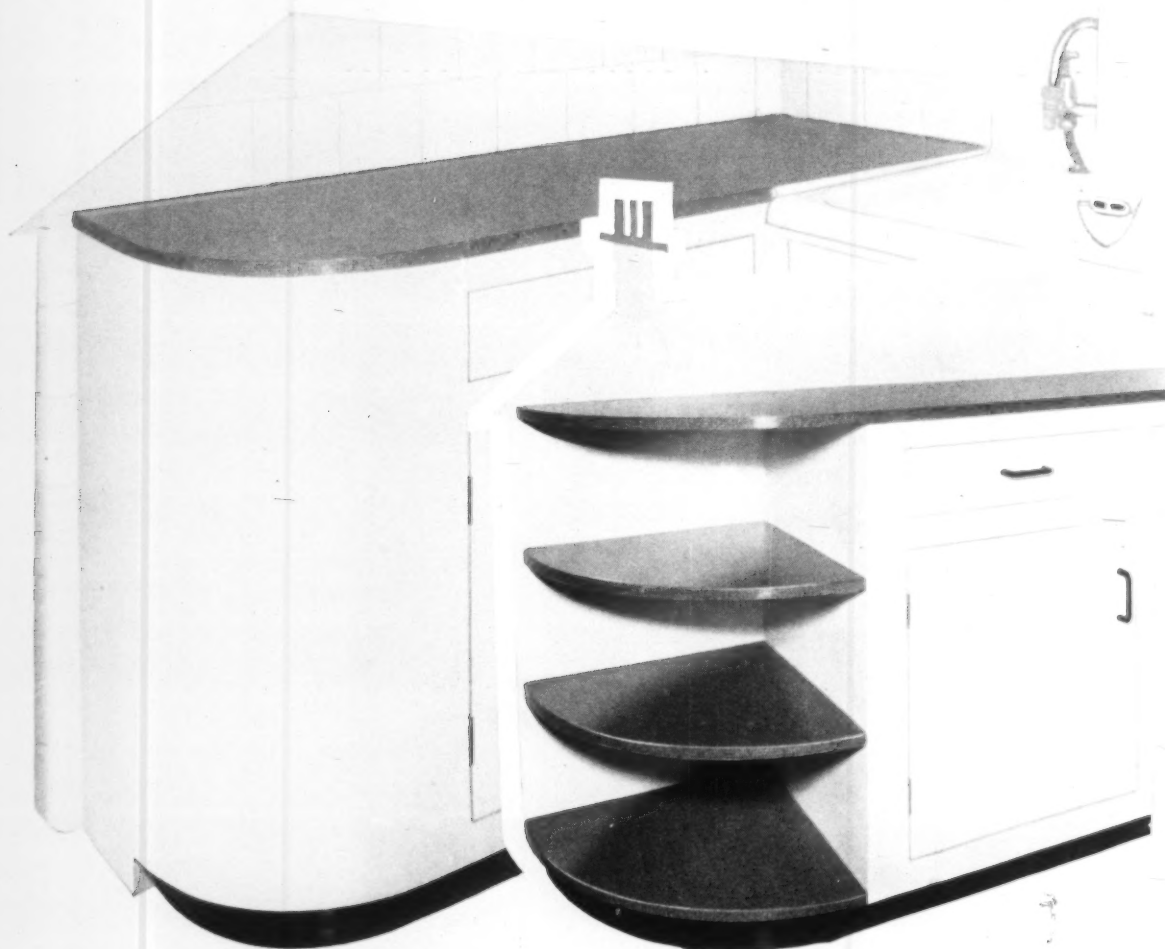
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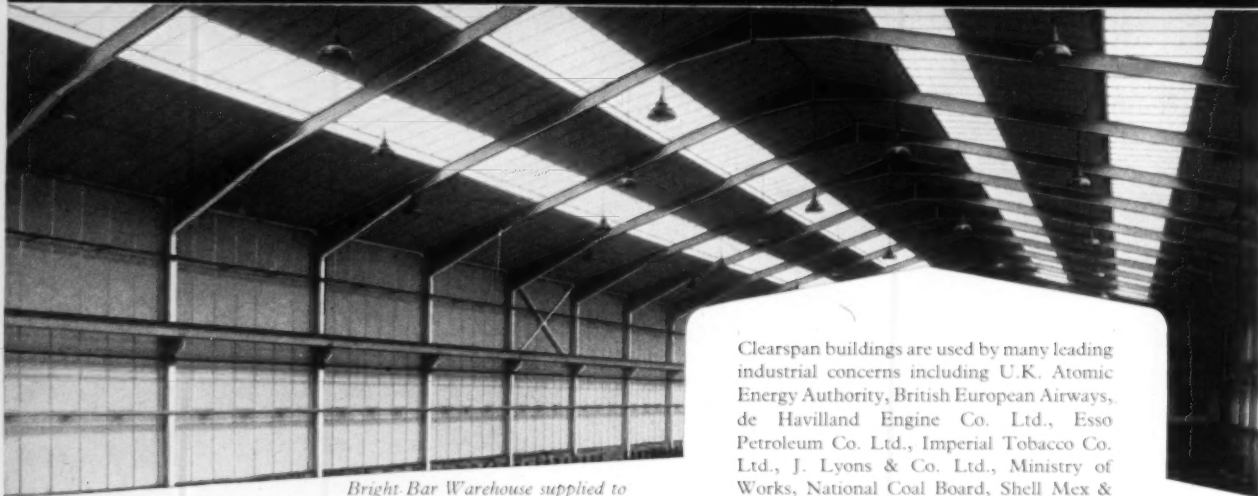
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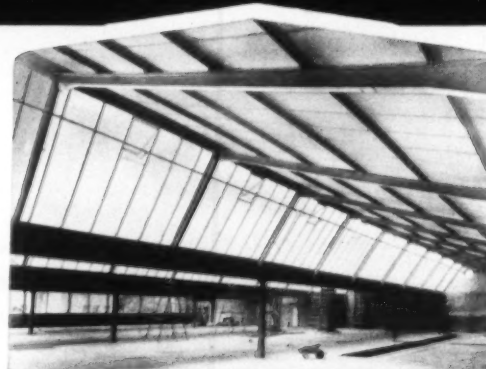
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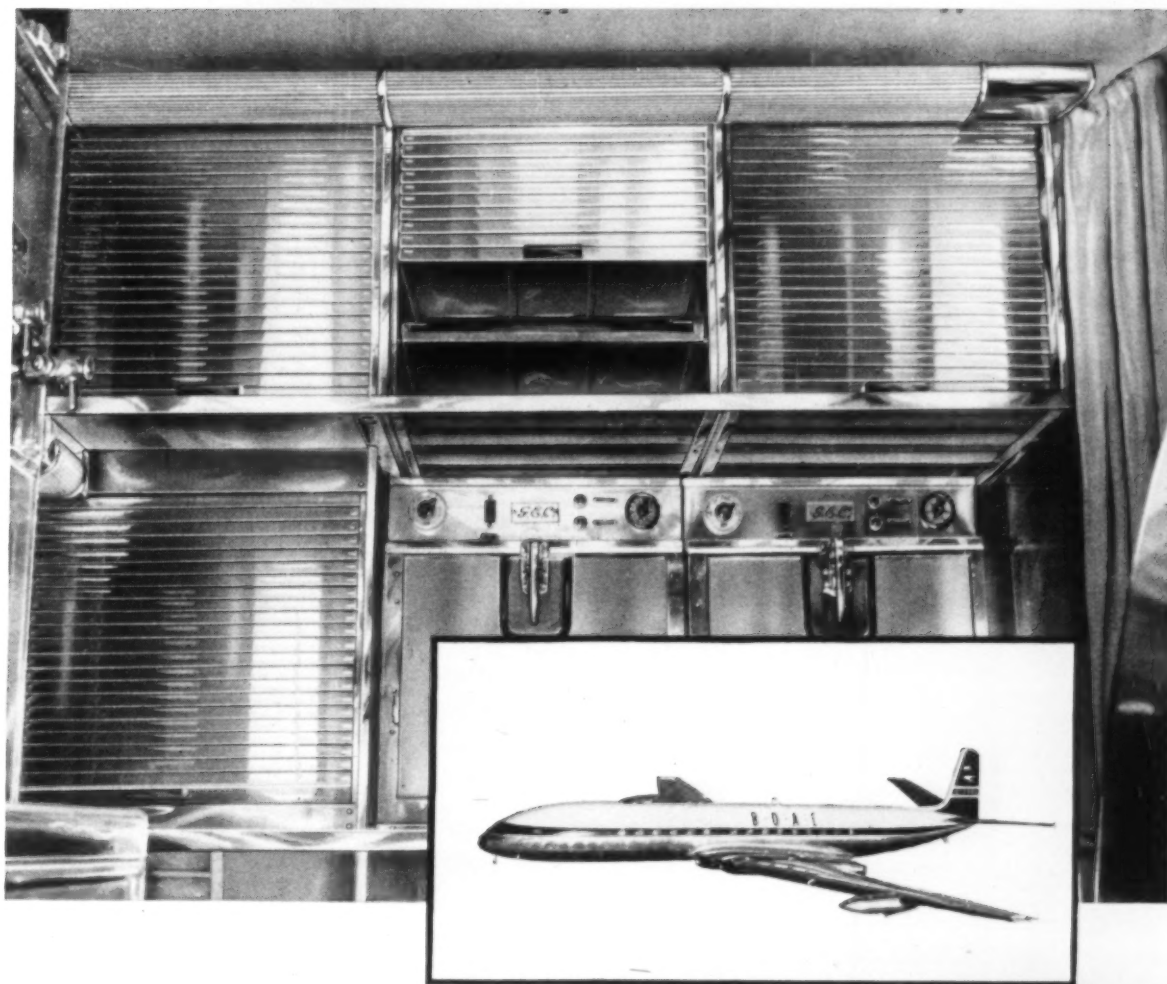
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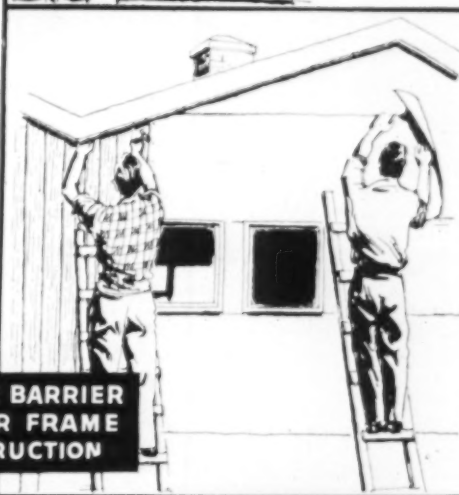
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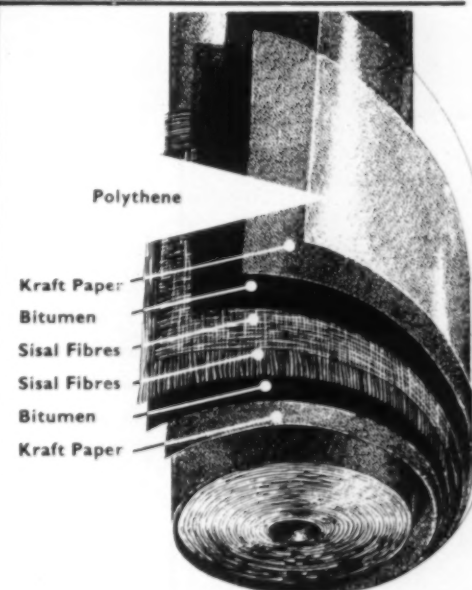
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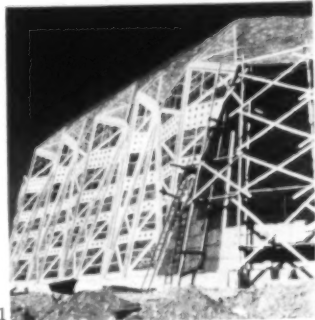
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MARGINALIA

Glass in Concrete

Wallace K. Harrison's fish-shaped Presbyterian church at Stamford, Conn., 1, is now completed and in use. As was expected, the main visual interest of the church, in view of its rather a-formal shape, lies in the internal and external aspects of the large area of stained glass employed.



The main ribs that carry the glass, 2, are actually structural and form, in effect, the members of a self-bracing triangulated space-frame. The panels of thick glass, executed in France by Gabriel Loire following templates supplied by the architect, cast into concrete, were offered up and supported in place by the scaffolding. Loops of reinforcement were left projecting from the sides of the panels to pick up with the reinforcement of the main concrete structure, and concrete was then poured into the intervening spaces—thus giving the building a virtually monolithic skin.



As others see us

Though the end of architectural journalism has been prophesied for the day that architectural journals begin to write about one another, architecture is one of the things that the communications industry influences to an ever increasing degree, and it is only proper that the industry should look itself over from time to time, and take stock of its responsibilities.

THE ARCHITECTURAL REVIEW has recently been looked over at some length by *Casabella*, in an article by Matilde Baffa with the following editorial explanation: 'With the intention of directing discussion towards the function of the press as a means of active intervention in the current orientation of international architectural culture, we pay homage to THE ARCHITECTURAL REVIEW which is the most faithful mirror of the British scene and its exceptional character; a particular heritage of civilization that is now an essential component of European culture.'

The analysis that follows suggests that, to Italian eyes, the REVIEW is what it believes itself to be, and that its own estimate of the value of its contributions is the true one. Signora Baffa identifies as our main characteristics: criticism, historical research, a neutral news coverage of current building. The Functional Tradition, active participation in the dialectics of town planning—and with one exception she clearly accepts that these are all good things.

The exception is the neutrality of our news service—there is a lack of methodological rigour, she says, in

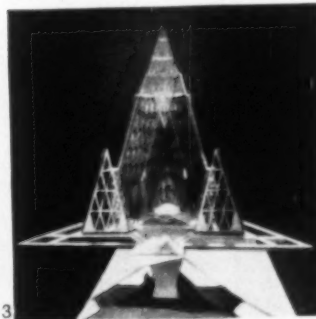
condemning formalism and arty introspection in full-dress articles while allowing it to go without comment in *Current Architecture*, though she appears to feel that there is some coherence between this attitude and the strictly academic (rather than polemic) standards of the historical features. The Editors have been over the same point with Andor Gomme in the correspondence columns as recently as last May, and there has always been a thin trickle of criticism of the REVIEW for not enforcing an absolutely watertight policy.

Curiously enough, *Casabella* itself has been under fire recently from another magazine that does have a watertight policy. *L'Architecture d'Aujourd'hui*, for presenting an 'indiscriminate eclectic panorama of the best and the worst' and thereby encouraging Romanticism and various other ills. Since *Casabella*, in rebuttal, prides itself on a negation of 'the disheartening conformism with which it (*L'Architecture d'Aujourd'hui*) regales its readers,' we have here two major components of the architectural communications industry who do not see themselves as others see them.

Finally, comment cannot be avoided on the fact that the *Architectural Forum*, in an article signed by its editor, Douglas Haskell, has gratuitously revived an old quarrel, and picked the REVIEW's *Man Made America* issue of December, 1950, as an example of a critical attack on popular taste. Had Mr. Haskell, like Signora Baffa, based his estimate of the REVIEW on a ten-year corpus instead of harping on a single issue, he would have known that the REVIEW, in general, has been more sympathetic to popular taste of various sorts than have most other architectural magazines, and for a greater period of years. Indeed, had he read *Man Made America* more closely he might not have been so certain that it was popular taste, as such, that was under attack.

Jewelled Watch by Night

A religious building with a complete and programmatic absence of any liturgical brief beyond a request that the Psalmist's phrase '... as a watch in the night' should inform the design, sounds a daunting prospect for any architect who takes church building seriously, but Henry Hill's solution to this problem, 3, presented in the form of a chapel of meditation annexed to a hospital in the mid-western US, seems to have succeeded in—at least—conjuring up the kind of symbol that the programme envisages. The structure is to be of coloured precast triangular elements with thick copper-coloured glass embedded in them, with a great diamond-form lantern of bronze and glass dropped into its apex. The night-time aspect of this jewel-like form—so obviously important to the



programme—will be enhanced by the fact that it makes use of a sloping site to stilt the whole structure, 4, twenty-two feet above ground-level.

A Heart for Tokyo

So many of the big modern buildings in Japan seem to have gone up so fast, and with so little consideration, that their only claims to attention are that they were the biggest in Asia for three weeks, or ten days, or a few minutes. In the midst of all this furious commercial hustle, it has been left to municipal enterprise to clear a little space, physically and psychologically, in which a large building can be seen and considered.



The building is the new Tokyo City Hall, 5, by Kenzo Tange, the first stage—it is hoped—of a planned municipal area with buildings set in open pedestrian spaces with car parking below. In creating these clear spaces Tange had to face more than the problems confronting a Western architect in similar circumstances. We are trying to recover a tradition of democratic urbanism that was trampled underfoot in the nineteenth century—he is trying to create such a tradition from scratch in the teeth of commercial rapacity that is still in a nineteenth century frame of mind. Even the public spaces within the hall have had to be fought for, and the guards still seem not to understand that the public should be allowed to use them whenever they democratically feel like it—Tange himself was ejected from the site when trying to photograph it.

The quality of this building—so Western in conception—is Japanese in an unusually successful way. Particularly in the interiors, 6, where



6 Tange had the collaboration of Charlotte Perriand, a quality that commonly turns out as ungainly lumpiness in recent Japanese work, is transformed into a feeling of plain-dealing straightforwardness with some of the virtues of traditional wooden architecture.

CORRESPONDENCE

Counter-Attack

To the Editors.

SIRS.—My attention has been drawn to a report on page 352 of THE ARCHITECTURAL REVIEW for May, 1958 under the title 'Counter-attack' of the recent widening of the road to Hinkley Point by the Somerset County Council.

Your contributor objects to concrete fencing. For some years the County Council have been trying to persuade farmers to accept quick hedges or timber post fencing but not with complete success, because farmers contend that concrete fencing is the most efficient. At Hinkley many miles of the former type of fencing have been erected, and where concrete has been insisted on, buff coloured concrete has been used. Your contributor has not referred to this, and further, his photograph has been taken from a position so unusual that no eye is likely to be there, thus giving a most distorted effect.

Concrete fencing was not erected at road junctions to provide sight lines. Adequate visibility was secured by means of splays.

To suggest that improved visibility at junctions increases danger is completely contrary to the evidence provided by experience and accident statistics.

How can your contributor say that the road will carry very little traffic? It is carrying a lot now and construction of the power station is not likely to be completed for many years, after which maintenance traffic for so large an installation is bound to be heavy.

The lay-bys are by no means too large, for they are continuously used. The lay-by is the modern method of discouraging vehicles from parking on the carriageway and is largely a safety measure.

It is our experience that lay-bys must be kerbed, otherwise traffic cuts up the grass behind, with resultant damage to adjoining foundations and the creation of unsightly mud.

Finally the photographs were taken when the work was far from finished. The Council have planted over 6,000 yards of quick hedge and 780 trees and shrubs, but it is bound to be some time before these are fully

grown. Your contributor's criticisms are unfounded and unjust, and his bias and ignorance do his cause no good.

Yours, etc.,
J. H. H. WILKES,
County Surveyor,
Somerset County Council.

Ian Nairn replies:

I am sorry and rather sad about this. I meant the note on the road to Hinkley Point to convey clearly that I thought Somerset County Council were on the whole doing a good job; I was also trying to suggest that this was a very special kind of road and hence needed very special treatment. To have this treated in the familiar 'unfounded - unjust - bias - ignorance' style is a bit dispiriting; what on earth would have been said if I thought the job had been really awful?

(a) concrete fences. I should think that buff coloured concrete will look slightly worse than the ordinary stuff, because the only effect it will give is that of a concrete fence inadequately disguised. What I was trying to suggest was the usual effect of the fence, almost impossible to bring out in a normal photograph. Believe me, the real thing is a good deal worse than the photograph made it.

(b) sight lines. The concrete fences here must have been a coincidence—but a remarkable one, as reference back to the photograph will show. The visibility secured by the splays alone (imagining the concrete fences as solid) would indeed be quite reasonable and I would never have objected to it. My point was that someone of a carefree disposition coming along the side road would get to the concrete fence, think nothing was coming, turn out at about 30 mph and meet either a car that had got confused with the blur of uprights and wire or one that was travelling at the sort of speed which the road construction and sight lines have made possible.

(c) traffic. Your contributor was basing his estimate on that of the C.E.G.B.; once the station is built there will be few people employed there, very little traffic in and out—one radioactive lorry a week, I think—and not much maintenance.

(d) lay-bys. I didn't say large, I said grandiose and permanent—i.e. given the standard treatment they would get on a housing estate or the main road into Taunton. My point was that this traffic is going to be temporary, hence the cutting up of grass is going to be temporary too—and the unsightly mud is going to be far more natural in a muddy county than the unsightly kerbstones. To my knowledge there are no foundations within reversing distance of the edge of these lay-bys.

(e) planting. I said that hedge-row were being planted; I said that the site was unfinished. I also said that the road would be illustrated later when the site was finished, which it will be, along with what looks like being a very effective bit of roadmaking at Bridgewater. How many more qualifications does one need to make?

On rereading the note the phrases 'completely absurd' and 'classic case of blindly following a rule of thumb' were pitched too high for the subject and I recant 'em. They were probably written in the six weeks during which I was in plaster after dislocating my ankle on Mr. Wilkes' blessed road; that'll teach me to poke my nose in.

Man in a Hot Tin Box

To the Editors.

SIRS.—Transport in towns has become the problem of the moment

and is therefore a challenge in the planning of towns. To discourage the motorcar in towns as J. M. Richards suggests in his essay 'Man in a Hot Tin Box,' is to side-step the problem and at the same time to lose the facility of movement which the motorcar makes possible. Whilst it is a fact that the more road space that is provided the more motorcars arrive to use it (or perhaps, more accurately, motorcar population is related to parking facility), there is a saturation point related to population beyond which this does not apply. I think, too, that the analogy of the motorcar and the individual house is not valid because the latter is dilution in space whilst the former is concentration in space and time. The motorcar can adjust its time-factor by, for instance, staggered working hours, as well as the space it occupies, i.e., bubble cars and multiple parking systems. The psychology of motor ownership is, I think, a subservient aspect; it is reflected in bigger and more powerful motorcars, not in their numbers, and the insistence on function rather than cult is seen in the growing popularity of miniature cars for town use.

Primarily, a town must be functional in all its aspects, and if this is achieved it will be beautiful because beauty is an association of gratifying emotions. Considering the aspect of communications, the most efficient public transport system must be run for the convenience of the group, not for the individual, therefore it is likely to take a person longer to make a door to door journey than would personal transport, and so it is not truly efficient. This means that towns must be designed to accommodate a transport system of individual machines, and this can be done in the design of new cities and in the redevelopment of old.

The ruling consideration is to avoid concentrations of vehicles in time and space. Conventional town planning is opposed to dispelling concentrations, and, in fact, the principle of nodality upon which towns are founded ensures the maximum concentration of people and vehicles at the centre of the concentric town. Soria y Mata's 'Ciudad Lineal,' Garnier's 'Cité Industrielle' and Sant' Elia's 'La Città Nuova,' although all conceived before 1914, contrived to dispel traffic congestion either by multi-level circulation (Sant' Elia) or by a lineal transport system. The conventional spider's web pattern of town communications, with its intense concentration at the centre, is thus avoided.

The disadvantage of the lineal town centre (extended communications) can be mitigated by forming it into a hollow triangle, with the three central area uses—commerce, shopping and public buildings—occupying a side each, with the conventional inner ring road on the inside of the triangle. The hollow centre can then be developed for high density residential use—flats and hotels—whilst outside the triangle can be the lower density housing. Further dilution of traffic can be achieved by use of the teleprinter, so that only a skeleton staff need be at the nodal point of commercial activity, and the large office staffs may be dispersed to other parts of the city. Staggered working hours can ensure free traffic flow on the approach roads to the centre and use of bubble cars can substantially reduce the problem of parking.

I am suggesting that city centres should be redeveloped for high density residential use only, and that central area uses should be dispersed one stage where space is available for

its traffic requirements, and that these traffic requirements can themselves be diluted in time and space so that in the functionally designed city the machine is not visually dominant but is available for individual use.

Yours, etc.,
FRANKLIN MEDHURST,
Dept. of Town and Country Planning,
University of Manchester.

INTELLIGENCE

Sir Leslie Martin, Professor of Architecture in the University of Cambridge, has been appointed a member of the Royal Fine Art Commission in succession to Sir Howard Robertson, who has resigned on account of increasing professional commitments.

On September 11 the first provincial design centre was opened at Stonebridge House, Colston Avenue, Bristol, 1. Although it has no connection with the Design Centre in London, it has the approval and support of the CoID and no goods may be shown unless accepted by the CoID for inclusion in 'Design Index.'

The Society of Architectural Historians of Great Britain announces that Professor Henry-Russell Hitchcock has offered an 'Alice Davis Hitchcock Memorial Book Award,' similar to that already given by the American SAH, and—like it—consisting of a Wedgwood medallion. The award will be made annually to the author of a work on British architecture, or a work on any aspect of architectural history by a British subject.

The exhibition of Le Corbusier's architecture, paintings, sculpture and tapestries, which has been touring Europe, will be shown at the Walker Art Gallery in Liverpool from December 10, 1958, to January 17, 1959, and at the Building Centre in London from the end of January to the middle of March.

ACKNOWLEDGMENTS

MARGINALIA, pages 353-354: 1, McCallum Arphot; 2, Paul Popper. ANNEX TO THE OLD VIC, pages 361-365: Galwey Arphot. FACE OF THE PUB, pages 366-373: frontis top: Eric de Maré, bottom: Toomey Arphot; 1, John Slater; 2, 12, McCallum Arphot; 3-6, 17, 18, 20-22, 24, 25, Toomey Arphot; 7-11, 13-16, 19, Galwey Arphot; page 373, a, W. W. Winter Ltd.; c, Toomey Arphot; d, A. C. R. Ware; e, S. W. Kenyon; f, S. Lambert; g, Galwey Arphot. SEAGRAM ASSESSED, pages 374-382: Cervin Robinson Arphot. U.S. CORRECTLY CONSTRUCTED, pages 389-391: 1, 3-7, Elisha Dubin; 2, Vasari Roma. INTERIOR DESIGN, pages 392-397: Offices for W. H. Smith, 1, 6, Reginald Eyre; 2-5, Herbert K. Nolan Arphot; Offices for J. Sainsbury, 7-9, Herbert K. Nolan Arphot; Kitchen in Cheshire, 10-14, Rex Lowden. DESIGN REVIEW, page 398: 1, 3, Liberty; 2, Fornasetti; 4, 5, Toomey Arphot. CURRENT ARCHITECTURE, pages 399-402: 1-5, Galwey Arphot; 6-11, W. E. Middleton and Son; 12, 13, A. D. Marsden. SEVENTY YEARS BACK, pages 403-405: Mrs. R. W. Fish. MISCELLANY, pages 406-413: Book Reviews, 1-3, Horizon Press N.Y. Exhibitions, 1, Leslie Marr; 2, 3, British Council; 5, Tate Gallery; 6, Brassai. Backyard Mentality, 10, Aerofilms; remainder, Galwey Arphot. A Jesuit Façade in China, 1-4, J. B. Bury. SKILL, pages 414-420: Metal Finishes, Part 11, 1, 2, 5-7, Galwey Arphot; 3, 4, Tella Co. The Industry, 2, Spice Photos.



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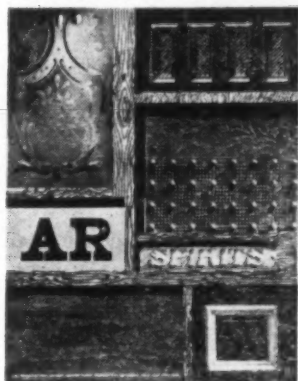
◀ INGLEWOOD ▶ A TAPESTRY WEAVE



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THE ARCHITECTURAL REVIEW

Volume 124 Number 743 December 1958



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366 The Face of the Pub by Hugh Wykeham

The outside of the traditional English pub, where it is custom-designed and not merely a house made over, is part of a functional tradition of frame-and-fill design

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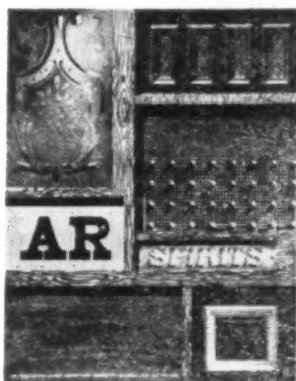
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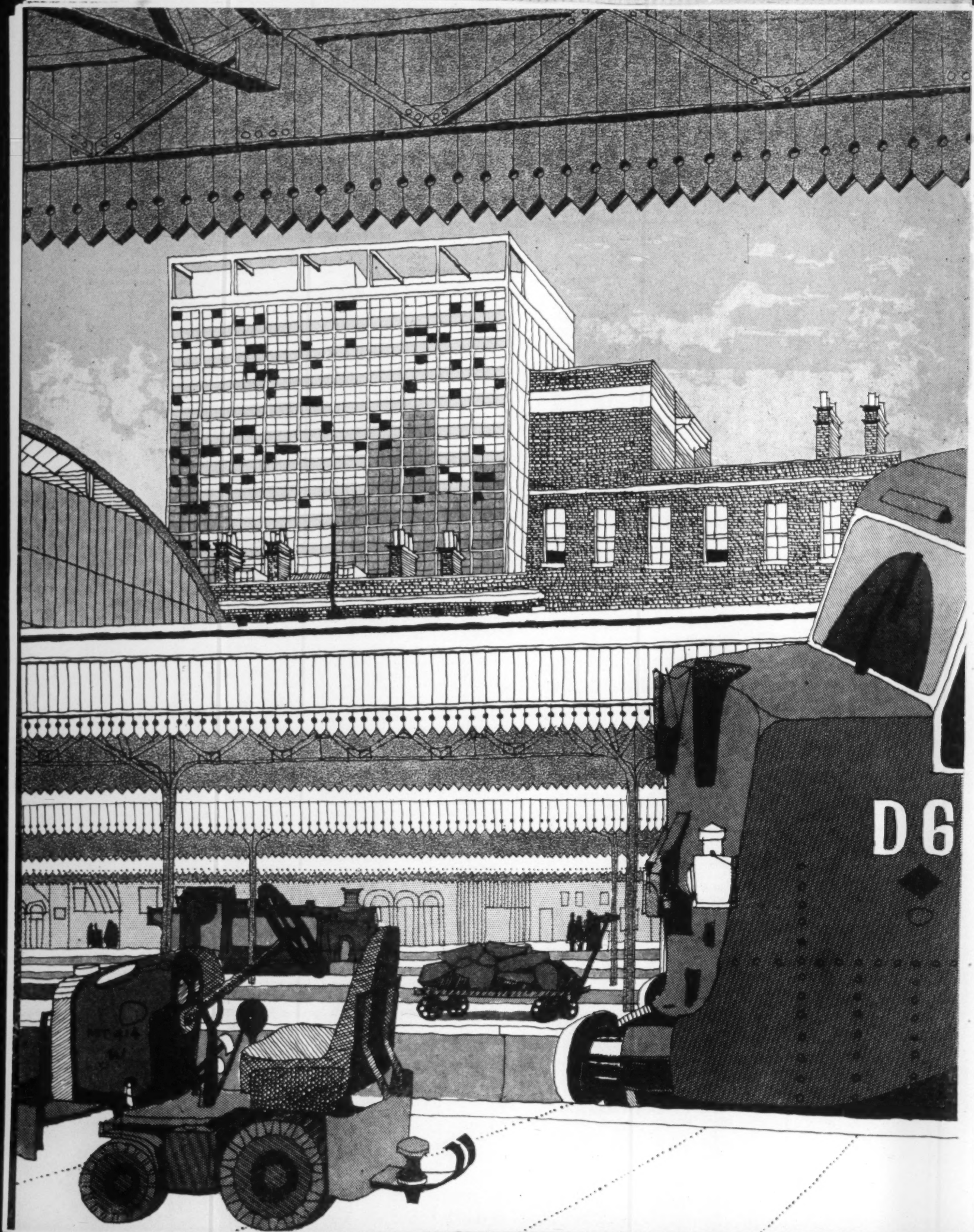
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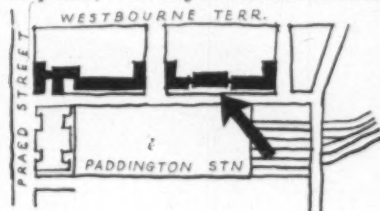
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FIVE SHILLINGS



Seen in Gordon Cullen's drawing towering above the romantic interior landscape of Paddington Station, opposite the terrace development by Cecil Elsom and Partners, is not an isolated town-planning incident in a run-down area—it is part of a whole re-designed streetscape, running the full length of one side of the station, as in the plan below. The scheme, now nearing completion, is not only a remarkable achievement architecturally, in



terms both of scale and absolute size, but is also an example of what might have happened in the City of London proper, given better co-operation between developers and planning authorities.

J. M. Richards

WELLS COATES 1893-1958

A compactly built man with a Ronald Colman moustache and crisply waving hair, well dressed for all occasions with a way of switching on social charm as though it was a beam from an electric torch; a voluble conversationist whose talk was spiced with Services terminology and *avant-garde* jargon; ingratiatingly attentive to women, with a line of talk about places he had been to like Japan, which other people hadn't. Such was the picture too many people got of Wells Coates, from which they may have drawn conclusions that he was vain, a playboy and a fashion-monger; and since he was none of these things and is now dead, it is only just that it should be said what kind of man lay behind this deceptive exterior.

Moreover, it should be said in an architectural journal out of gratitude to him; because modern architecture owed more to him than it was customary to acknowledge and far more than the new generation of architects is likely to know—but more about that later.

First, Wells Coates the man. Underneath his elaborately social manner and his line of talk lay an intensely serious personality, with unswerving integrity about the things he regarded as important (which meant chiefly architecture) and a fighter. Why he went about in this disguise I won't go into here because this is a memoir, not a psychological treatise. Nor would the usual psychologists' explanations about over-compensation for a sense of insecurity add anything useful to our understanding of the real man and his under-used potentialities. That he was essentially a lonely character in spite of his assiduous sociability his friends already knew.

He was at his best when he felt that he was among friends who appreciated his good qualities, and one remembers him most warmly at those international meetings in which

he delighted to take part, especially the periodic congresses of CIAM. On the journey to Athens and back on board S.S. Patras II, where CIAM held its first major congress in 1933, at La Sarraz, Bergamo and Aix-en-Provence and many other gathering-places, Wells was a central and energetic figure, not only in the conference sessions but around the café tables where the dissemination of ideas and the establishment of international contacts which make such congresses worth while chiefly take place. And behind the scenes as well; for he was the principal British delegate to CIAM for many years and a hard-working organizer. Many of the discussion programmes and manifestos that constituted the working papers of the CIAM congresses were drafted by him.

The international atmosphere of these congresses suited him perfectly, because he was a man of no fixed roots, with the ability of many such to seem at home everywhere. He could take his place unselfconsciously alongside the internationally known figures who presided at these congresses—Le Corbusier, Giedion, Sert, van Eesteren, Gropius—and his gaiety on these occasions was unforced as, in the hot summer sunshine, shirt-sleeved but immaculate, he busied himself with meeting after meeting or conferred with his particular intimates: Emery, Bodiansky, Jean-Jacques Honegger and some others. It was even the same when CIAM congresses were held in England, as they were in Bridgwater in 1947 and Hoddesdon in 1951. There Wells was in the centre of everything, talking enthusiastically in French with his demonstratively Gallic accent and flourish of the hands—even to foreigners whose English required neither.

He was one of the first British members of CIAM and one of the founders of the MARS Group, its English branch. In the nineteen-thirties, when the cause of modern architecture was being sustained by arguments and manifestos until such time as opportunities of building should come along, Wells was foremost in all the groups that did this necessary spadework—work which it is easy to disparage now when all we take note of in the *Charte d'Athènes* is its sententious phraseology and its too rigid adherence to functional classifications. But such statements of dogma were landmarks in their time. It was their thorough working out of theoretical principles that made it possible to put theory into practice in due course. Today's architects take for granted freedoms and opportunities that would not be theirs if it had not been for the violent propagandists of the 'thirties.

Wells's part in MARS and CIAM was especially directed at exploring the common ground between architecture and engineering. He was also intrigued by the common ground between architecture and the fine arts, and was one of the founders, in 1933, along with Colin Lucas, Herbert Read, Henry Moore and Ben Nicholson, of Unit One, a group designed to explore relationships between the arts and to stage exhibitions designed to clarify them.

There must have been other short-lived groups, too, because Wells, being scientifically minded, enjoyed the codification of ideas—the fitting of thoughts into a pattern—that the preparation of group manifestos entailed. But for him this was far more than the useful mental discipline it is to some people, because it gave expression to his profound belief in principles, a belief that dominated his whole working life. For him the fascination of every design problem was not

the intrinsic merits of the eventual solution but the way it could be used to illustrate a principle he believed in or test out some theory. 'Search and re-search' was one of his favourite expressions and he was indefatigable in his efforts to isolate the philosophical essence of any procedure or idea, to relate the particular to the general.

Speculation of this kind, because of the polysyllabic language in which it is often expressed, easily acquires an air of pretentiousness. Such an air overhung Wells Coates's public façade; but in private, among people he knew, intellectual pretentiousness quickly evaporated, and he revealed himself as a sincere and simple character, quite humble when he was discussing his own work because then talk became only a means of explaining ideas that were their own justification.

He was also a kindly character, and in his studio flat in Yeoman's Row, London, an attentive and

generous host. There he entertained his friends on cushions on the floor, informally but memorably, especially when he could be persuaded to show his skill at cooking a Japanese dinner, an attainment that dated from his childhood spent in Japan.*

His skill as a cook is worth mentioning because it illustrates that sense of craftsmanship, that sense of the importance of doing however small a thing really well, which was the essence of his character. In fact if one were asked to define Wells's contribution to the development of modern architecture one would probably begin by saying that he was one of the first to show what craftsmanship meant in relation to modern conditions and techniques. The word craftsmanship is generally associated with the products of another age than the modern one that Wells Coates was interested in, and especially with handicrafts; but Wells, trained (as he enjoyed reminding people) as an engineer, knew that artists and architects could successfully come to terms with machinery only by acquiring a mastery and understanding of technique comparable with the craftsman's mastery over his tools and materials. He insisted on being on these terms with his, which was evident not only in his work but in the way he lived—for example in the way he drove his vintage-model Lancia with the nonchalant air of one to whom an engine is but an extension of his own limbs.

And he insisted on every possible detail of his life being consistent with this idea—he was not only, by his nature, interested in flying but was a qualified pilot, and his service in two wars was connected with flying. Another very small but significant example: I suspect that he was one of the first to use the now ubiquitous stencilled lettering on drawings. If he was, it was typical of his discontent with the accepted ways of doing things if another way could be worked out that seemed more in accord with the whole modern trend of development.

His habit of regarding every problem as a challenge, which demanded seeing all round it and understanding it in all its aspects before anyone was qualified to set about solving it, was one of the secrets of his versatility as a designer. His pre-war Ekco radio set—one of the best-looking on the market for many years—was an example of complete integration of engineering with what would now be called styling, although it was perhaps typical that in his own studio he had a set, also of his own design, that was simply a glass case with all the works exposed, whose precision and intricacy pleased him even more. And another example of his enquiring mind at work was the time and energy he spent in later years designing a sailing boat—a catamaran of a kind—which involved not so much improving on existing models as thinking out basic aerodynamic principles in order to create a new one.

The same combination of qualities went of course into his architecture, with the addition of an equally profound habit of enquiry into the social as well as the technical functioning of his buildings. This is especially evident in the building that made his name: Lawn Road Flats, London, which he built in 1934

for Jack Pritchard. Again he was looking ahead; not catering for a present pattern of living but asking himself what architecture could do to facilitate the emergence of a more appropriate pattern.

In this case what he (and Jack Pritchard) were trying to do was to plan for the new type of man who likes not only to travel light but to live light (a type, incidentally, to which Wells Coates himself largely conformed), unencumbered by possessions and with no roots to pull up. For such a man the multiplication of spaces—such as the more expensive domestic architecture usually provides—is not the ultimate luxury, but the perfection of service arrangements so as to reduce domestic obligations to the minimum. Lawn Road consists of minimum-size bed-sitting rooms, each with a compact but fully equipped kitchen and bath-room—it is nearer to the *machine à habiter* than anything Le Corbusier ever designed. The building is brilliantly planned, and in spite of its thirtyish lack of crispness of finish and its concrete structure expressed in a monolithic fashion we find somewhat clumsy now, it remains unique and completely successful in practice. It was in fact successful from the moment it was built, and it must have warmed Wells's cosmopolitan heart to find that it became the home and meeting-ground of the architects and other refugees from Nazi Germany who had such a stimulating influence on English architecture in the years just before the war and were, besides, his friends.

I suppose the prototype—or it may have been the further development—of Wells Coates's one-room flat idea was his own studio flat in Yeoman's Row. It differed in that a sense of space was aimed at and achieved, but the conception of how it was to be used was the same, and it had the same minimum bath-room and kitchen tucked away round the corner, with the addition of a couple of minimum sleeping areas on balconies, reached by ladders from the studio. These are significant because they were the first example of his capacity for planning in section, which played an important part in his work afterwards and showed that he had the three-dimensional imagination of the real architect. This capacity was demonstrated in the split-level planning of his flats in Palace Gate (1938) and in his design for the National Film Theatre (put up as part of the 1951 South Bank Exhibition), where the levels were again skilfully used and the projection rooms fitted into the thickness of the balcony structure.

Other qualities in his buildings were unerring taste (even in his more elaborate designs there was no trace of the showiness that was sometimes a part of his public personality), and an ability, perhaps linked with this instinctive taste, to reduce a design to its essentials without making it merely dull or arid. But there are not enough buildings by him in existence to bring out his capacities as a designer to the full. He never had anything like the number of commissions his talents deserved. This was at least partly, it must be said, due to defects in his own temperament, for if the hackneyed phrase, 'he was his own worst enemy,' is true of anyone it is true of Wells Coates.

He had little judgment about public relations and a saddening way of getting personally on the wrong side of his clients. He would, for example, harangue

* Where his father was a professor of comparative religion and philosophy. Japan was his home until he was 18, when he went to Canada, his mother's native country. He came to England in 1929.

a board of hard-headed business men with the kind of art-jargon that made them suspect his practical ability, or turn up at a friendly luncheon with a well-disposed prospective client accompanied by his lawyer and frighten him away with sheaves of forms and contracts.

For such and other reasons his practice was always accident-prone; so much so that his friends became hesitant about asking how any project, about which they had heard him talk confidently and enthusiastically, was going, for fear of embarrassing him by compelling him to admit that the commission, like so many before it, had fallen by the wayside. This fatality pursued him to the end; after he had moved from England to Canada, the project there on which he pinned most hopes—the design for a new town of Iroquois, called for by the construction of the St. Lawrence Seaway—has now been completed by other hands than his and on a different site to the one he worked on so keenly.

But he would not have had one dwell on his disappointments, for in spite of them he remained determined and buoyant to the end of his life, and never lost his belief in the worth of what he was doing. It was especially for this bravery of spirit that his friends felt affection as well as admiration for this companionable, lonely and not very happy man. His friends were all over the world, a fact that he, with his cosmopolitan instincts, especially valued. So I end with a comment by one of them: Sigfried Giedion, secretary-general of the CIAM in which Wells played so active a part. The comment occurs in a letter Giedion wrote to Jaqueline Tyrwhitt (who had been associated with Wells in much of his later work) on receiving the news of his death.

'I think of him as I saw him first in 1933 on the ship at Athens and then, even more clearly, surrounded by young women, as I remember very beauti-

ful ones, at a party with champagne in his house in London. This was around 1940. I lived in his Lawn Road apartment house. He had all the talents to be a gentleman with big estates behind him, and one had always the feeling that this had been taken from him, even if, in fact, it had never existed. He was one of the few people of his generation who had the talent to be lazy. But he never could. And that dichotomy between desire and necessity made him the interesting personality that he was. He was never completely at home either in architecture or in life: this may somehow explain much of the stiffness that was apparent during the year he spent at Harvard. I am sorry about him, and his death is for me as inexplicable as was his life.'

But shrewd though Dr. Giedion's comment is I cannot quite end on so defeatist a note, because defeatism was altogether foreign to Wells Coates. Few of the greater spirits are happy men, and whatever faults of temperament Wells had, it is now part of history that he was one of the half-dozen men in England in the nineteen-thirties whose force of character began and carried on the grand Resistance Movement out of which modern architecture has grown. His force of character is indeed the key to Wells's achievements. For under the Hollywood charm there was a tiger of a man with a ruthless will, which he employed tirelessly on architecture's behalf.

It doesn't really matter in the long run that there are so few Wells Coates buildings for posterity to remember him by, because *all* the modern buildings we see when we look around us are collectively his memorial. The young men who find it so natural and easy to do 'modern architecture' today are the beneficiaries of his lifelong zeal, and whatever his personal triumphs and failures, his real record is a record of success because it lies in the vigorous growth of the movement to which he devoted all his powers and passions.

ANNEX TO THE OLD VIC

ARCHITECTS LYONS, ISRAEL AND ELLIS



1. VIEW of the south-west corner with the loading bay on the left and the balcony windows above. The light surfaces are a mix with the texture of the weathering left exposed china clay sand was used as aggregate.

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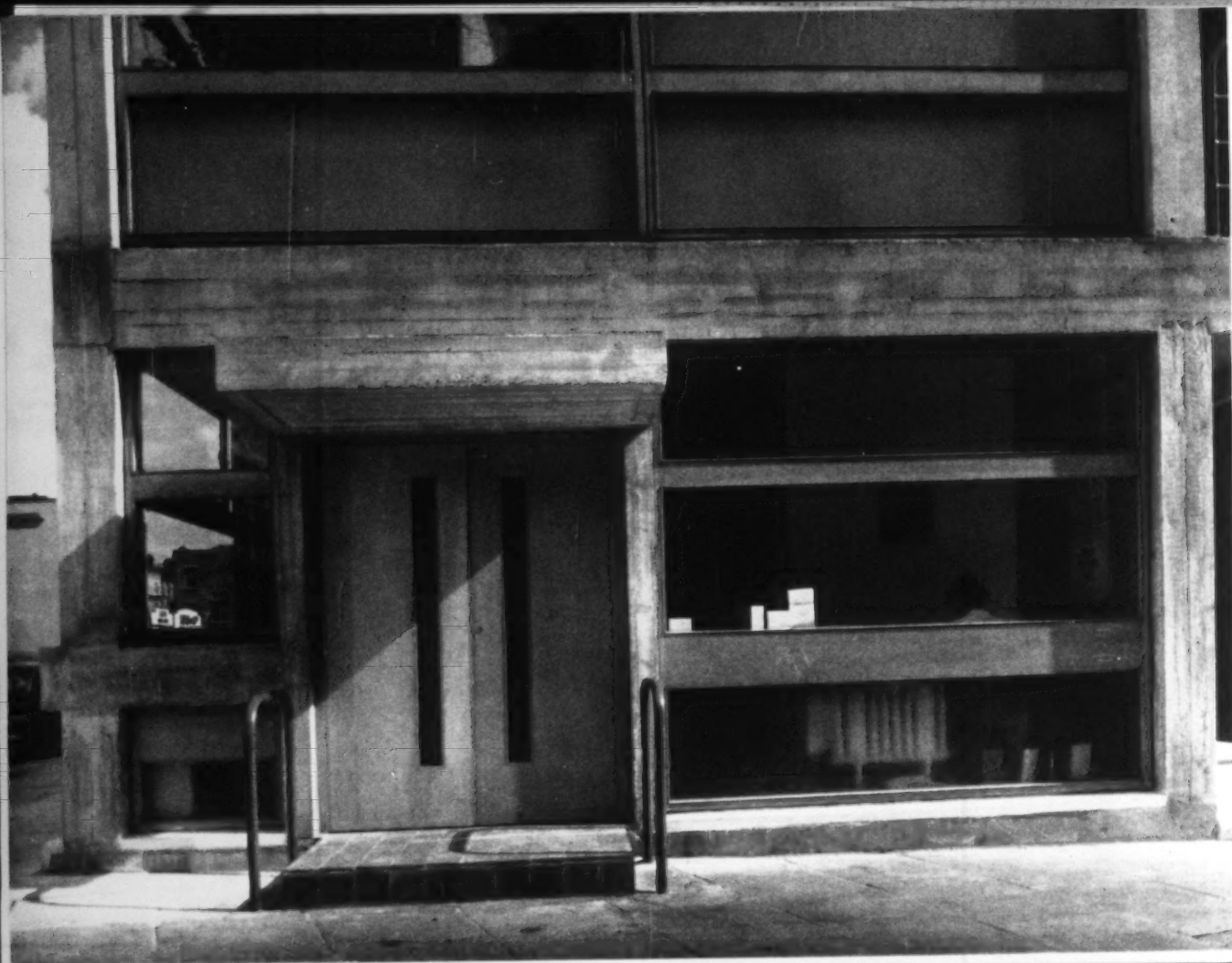
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ANNEX TO THE OLD VIC

ARCHITECTS LYONS, ISRAEL AND ELLIS



1. view of the south-west corner with the loading bay on the left and the board room windows above. The light surfaces are r.c. with the texture of the shuttering left exposed; china clay sand was used as aggregate.



ANNEX TO THE OLD VIC

2



3

This three-storey building forms an annex to the theatre in Waterloo Road, London, S.E.1, and houses the scenic workshops, studio for painting the backcloth canvases, wardrobe stores, fitting rooms and cutting room, and administration offices.

The building has to house a mechanically-operated paint frame 30-ft. high which requires wells 50-ft. deep; these are formed by separating the structure of the three-storey front block from the rear building by cantilevers, thus creating an uninterrupted space for the paint frames to travel between the intermediate floors. On the second floor the canvases are prepared and painted on the mechanically-operated frames, the finished canvases are lowered through the well to ground-floor level and thence transported to the theatre via the loading bay.

By the nature of the work undertaken inside, disfigurement of wall and floor surfaces is unavoidable, so instead of precise finishes, brick and concrete for walls and floors are left in their natural state. Tile and granolithic floor finishes are used to withstand heavy traffic and allow for easy cleaning.

The structure is an r.c. frame with china clay sand as an aggregate in the concrete. Generally the floors and roof are r.c. with flat roof asphalt laid on cork, but the pitched roof to the paint studio is of aluminium. The soffits of the workshop are insulated with wood-wool for sound absorption. Internal brick wall surfaces are of Uxbridge flints, while the external surfaces of the ground-floor workshop are foam slag blocks for sound insulation.

Mechanical and electrical services are installed on the surface for reasons of accessibility and to allow for alterations if required. In the design of the special services and installations for the building, the architects and engineers worked in close co-operation with the theatre production manager. The assistant architect in charge was J. H. Miller; Hajnal and Myers were the structural engineers and the quantity surveyors were Mercer and Miller.

2. the entrance with the hall beyond. Here there is a marked contrast between the solidity of the exposed concrete and the transparency of the glazed areas.
3. view showing the west and south elevations. The large expanse of brick wall which rises above the indented workshop wall and loading bay area, houses the paint frame.
4. the north façade: the paint frame room is on the second floor, fitting and cutting rooms are on the first floor, and offices on the ground floor, while on the right are lifts, lavatories and the entrance hall.

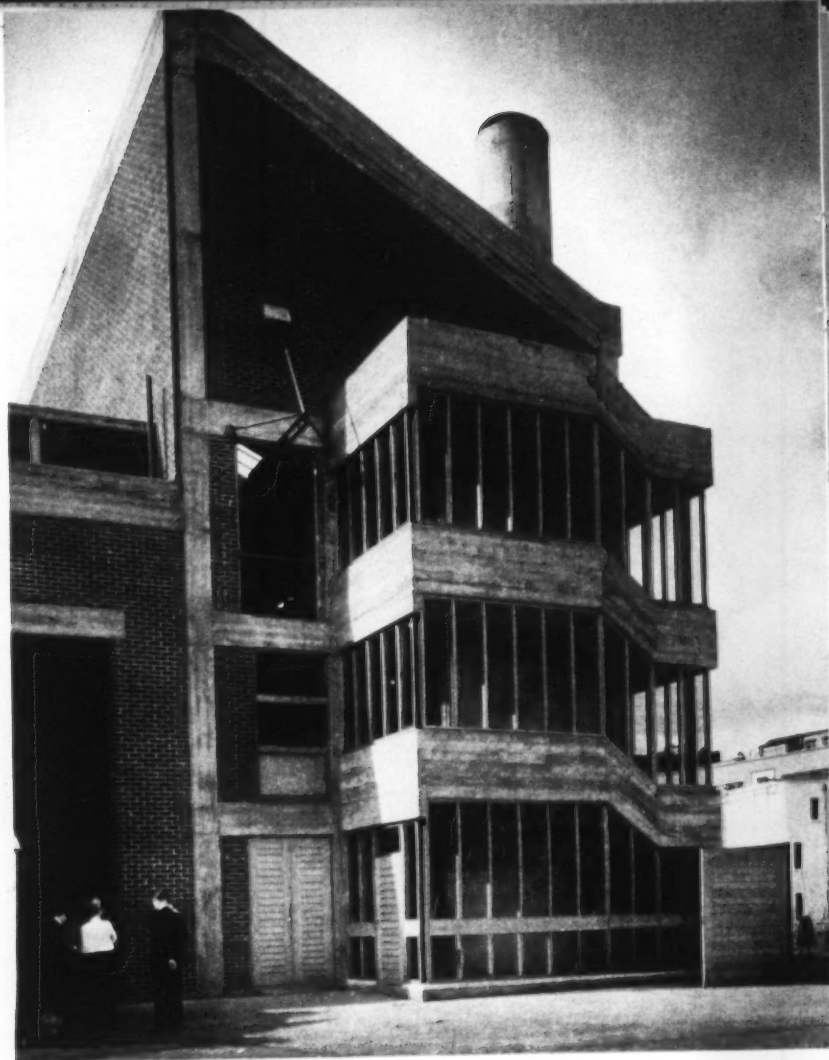


5. view from staircase
towards the entrance.
6. east elevation
showing junction where
paint frame travels,
formed by the separa-
tion of the three storey
block and the work-
shops at the rear by
cantilevers. To the
right is a staircase and
to the left is the work-
shop entrance.

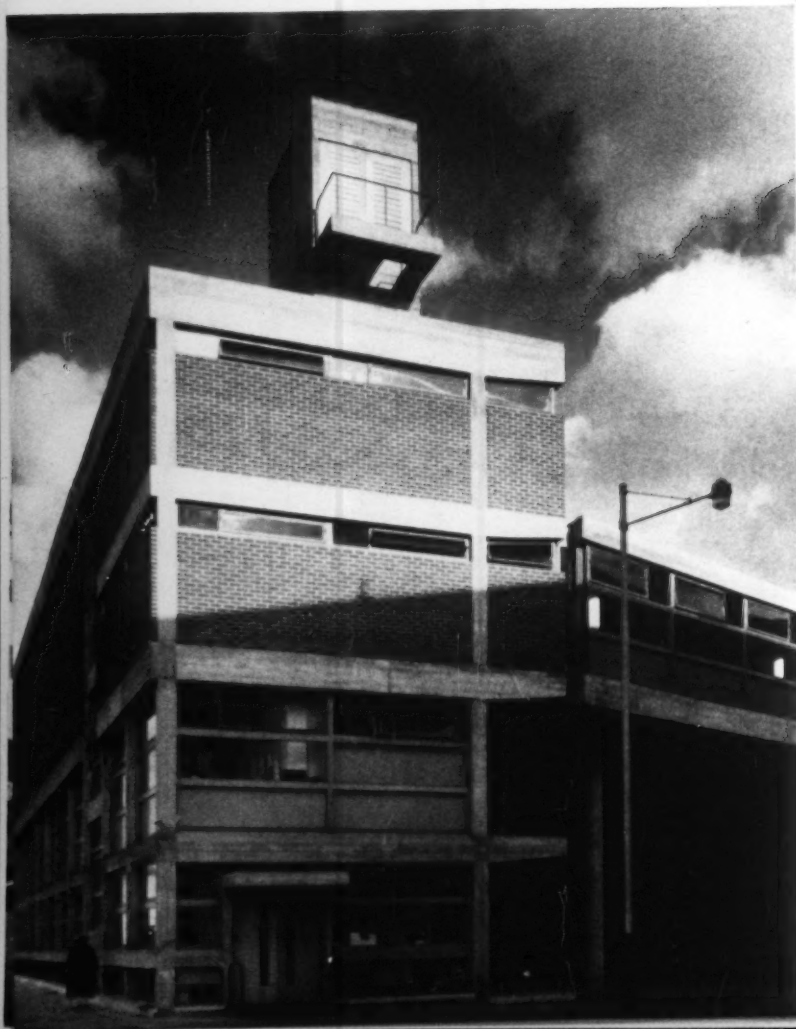


5

7. the west elevation.
Window and door
frames are of Colum-
bian Pine varnished,
and this construction
and finish is repeated
inside for the sectional
screens and fitments.
8. the room on the
second floor where
canvases are prepared
and painted on the
mechanically operated
frames.



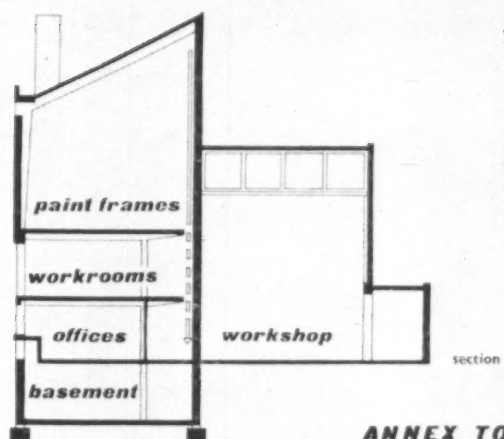
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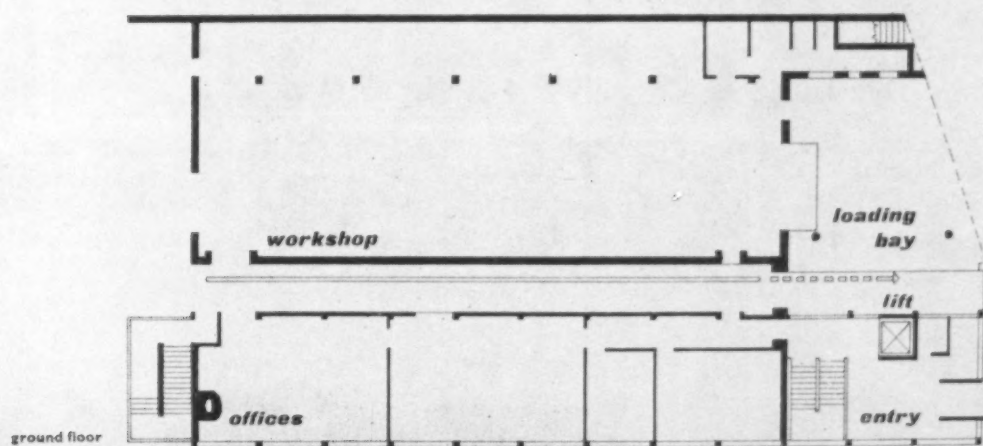
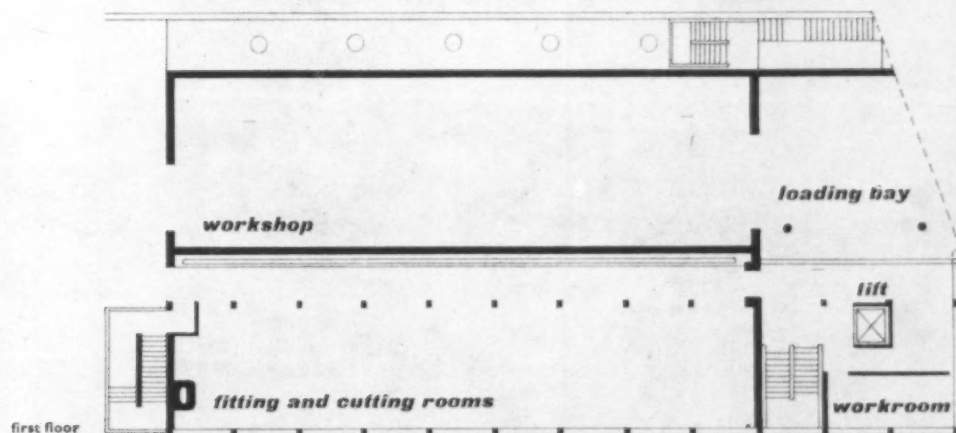
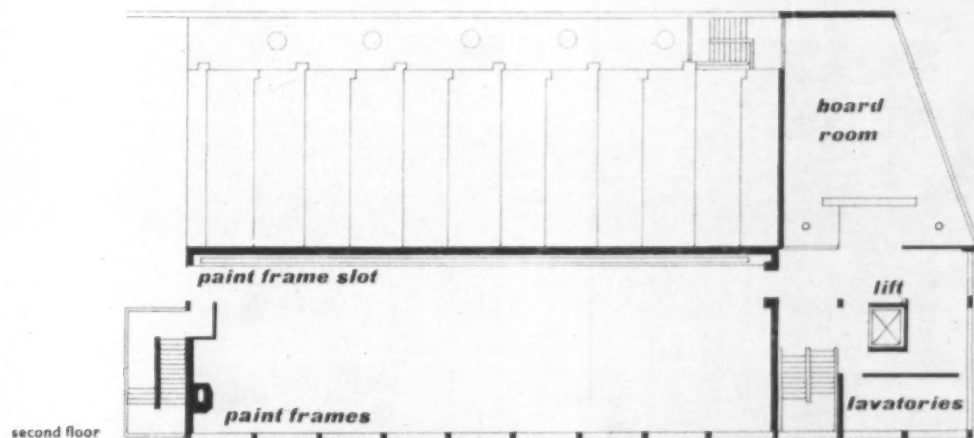
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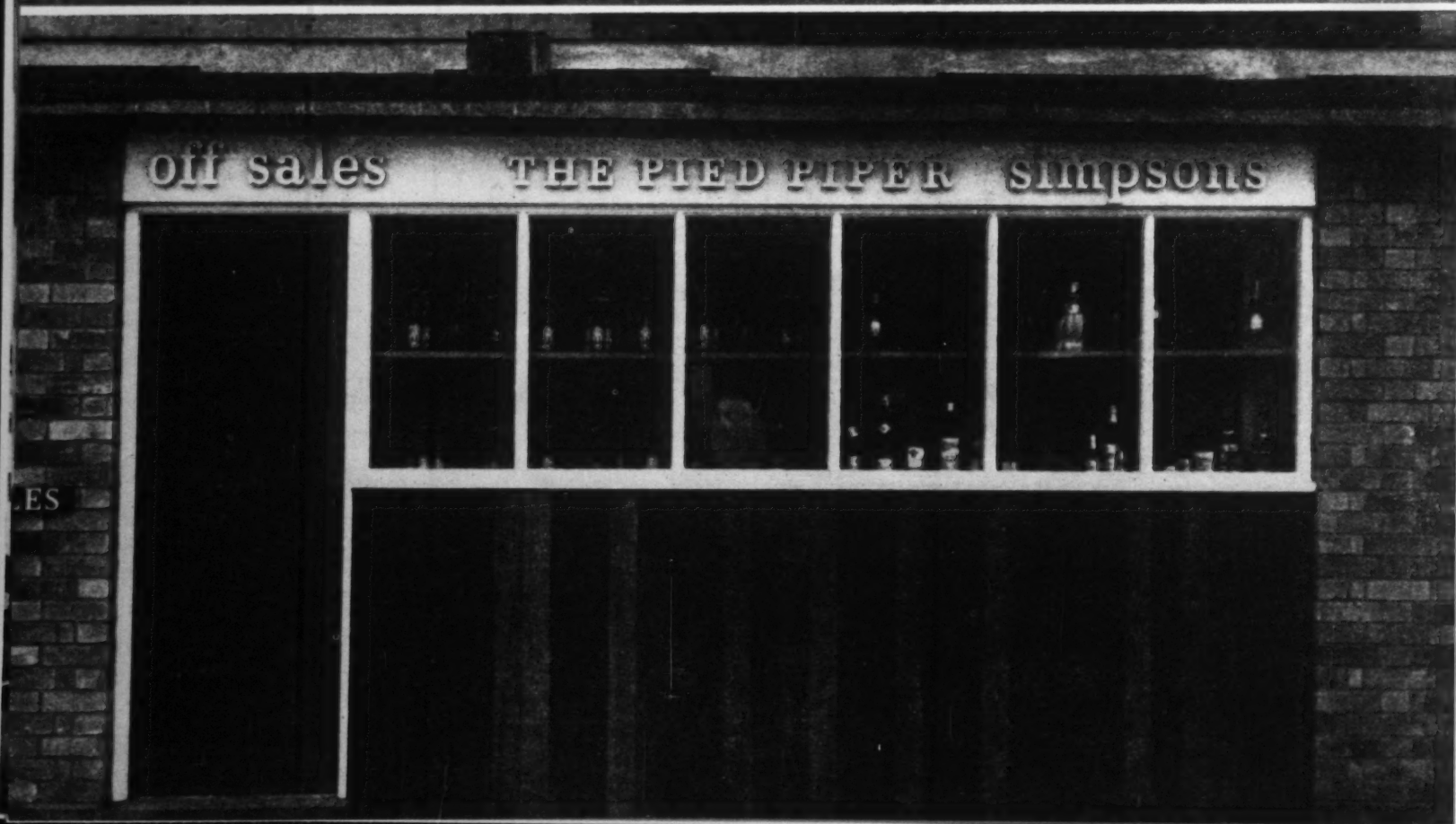


8




ANNEX TO THE OLD VIC





Hugh Wykeham

THE FACE OF THE PUB

The strength of the pub tradition in the design of exteriors lies in the rational structure of frame and fill that underlies even the most fanciful façade. Its history reaches back towards the functional tradition, as in the Crown and Mitre, King's Lynn, opposite  top, and forward into the better work of our own day, as in the Pied Piper, Hatfield New Town, opposite bottom, in both of which frame and fill inserts in brick walling mark parts of the building actively concerned with pub functions. The article below characterizes this tradition, and draws attention to new uses for it in the near future.

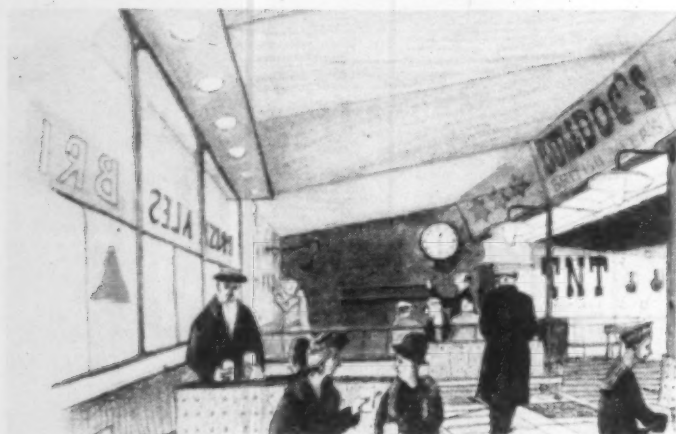
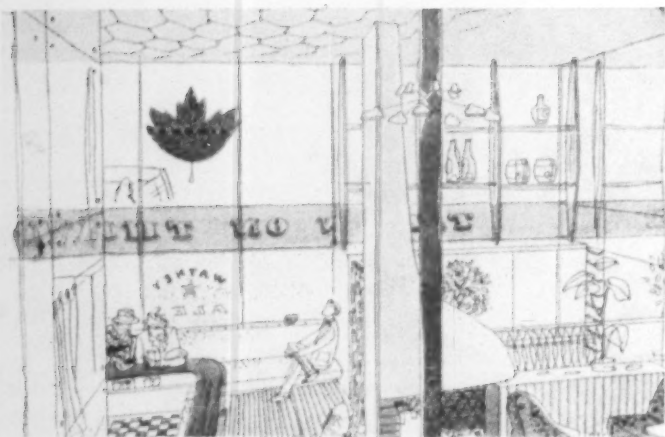
The origins of the pub in the traditional hospitality of the hearth have built certain domestic features so firmly into its interior layout that they can be set aside only at the risk of loss of the genuine atmosphere. This is particularly true in terms of scale on plan—parlours visibly larger than the rooms of a conceivable private house become wastes of institutional floor-covering isolating person from person. But on the outside of the pub the matter is different, and once clear of a certain primitive level where pubs are merely dwellings re-used, the traditional exterior of the pub is domestic neither in scale nor aspect.

One has only to visualize the average pub, standing at the corner of a street of Georgian terrace-houses or Victorian cottages to see how it diverges from the domestic character of its time. Along the street marches a fairly regular rhythm of solid and void, window and wall; always plenty of brick or stucco between one window and the next, whether one reads horizontally or vertically. This is true also of the upper floors of the pub, but its ground floor, the business-level, is conceived quite differently. Wooden pilasters, iron columns, or brick piers faced with

glazed tile or terra-cotta, rise clear from pavement to fascia-board, tall and narrow, the spaces between them almost completely filled with glass above elbow-level, and with some opaque infill below.

This is, in fact, one of the functional-traditional ancestors of curtain-walling, a load-bearing frame which occasionally, in rather late and sophisticated Edwardian examples, stands clear of the wall, though it is usually in line with it, blocked-in with a variety of special-purpose panels. Because only the frame is load-carrying, and is topped by a massive beam behind the fascia, the distribution of the uprights is not governed by the normal restrictions of bearing brick-work, and its rhythm is almost always independent of that of the upper part of the building (even in obviously architect-designed examples) and either has a bay-width module of its own, or no regular module at all, the spacing of the piers being determined by functional considerations and structural limitations—usually a matter of reasonable widths for doors, and the avoidance of overlong spans between supports.

The filling panels cover a multitude of uses, and



Entrants in the AR's Pub interior competition of 1950 were well aware of the relevance of the frame and fill functional tradition, as a means of creating publicity and privacy, light and view; top is the prize-winning design by Pollack, Prus, Hasler, Sharland and Negus, and below, a commended design by Peter Oldfield.

are often multi-purpose in themselves. Thus, above the cill-line, their main functions are to admit light by day, and to let it out by night, this last an advertising function doubling with a purely utilitarian one, just as the engraving, etching or back-gilding of the glass below eye-level usually doubles the functions of affording semi-privacy to the customers inside while carrying a certain amount of lettered and pictorial publicity. Both above and below the cill there will have to be panels for ventilation, usually glass louvres above and cast-iron grilles below, while other panels below the cill will probably act as hatches to the cellar, for lowering and raising crates and barrels, and all panels below the cill will have to be able to resist wear and tear beyond anything inflicted on domestic façades.

Although this complex and effective architectural formula grew slowly from the same undifferentiated ancestor as the shop-front, undergoing the kind of progressive refinement that characterizes a live functional tradition, it is difficult to see how anyone, starting from scratch and a blank mind, could have deliberately designed a better solution for the problem. Few other layouts, for instance, could have provided such an amount of such well-disposed space for lettering without becoming swamped by it, few other formulae would be so capable of extension or contrac-

tion to cover large or small façades without becoming incoherent, few so capable of being pared back to their bare essentials, or boosted up to a maximum of swagger splendour, without ceasing to be recognizably the same class of building, without losing their pub character.

It is a solution that is bound to recommend itself to architects today, even if brewers seem mostly unaware of its virtues, but those who wish to adopt it, whether in the restoration or 'de-modernization' of old pubs, or in the design of new ones, would be well advised to take note of the responsibilities it brings with it. In particular the style of its detailing was always characterized by two chief considerations. Firstly, they were purpose-designed for pub functions—the ventilating grilles, for instance, may resemble other functional tradition grilles of their period, but inspection will show that, particularly below the cill-line, they were conceived from the beginning as *pub* ventilators, adapted to specific pub functions, and not common ventilators made over. Secondly, the style of any consciously applied visual treatment, whether little or lavish, was always popular rather than aesthetical, was always—so to speak—Borax rather than Bauhaus, and only in rare style-epochs such as the Edwardian Baroque was it likely to answer to the cultivated taste of the period.

But under the conditions of the mid-twentieth century, distinctions between cultivated and vulgar tastes are less easy to make than they were. Cultivated tastes range wider, can accept 'multiple aesthetics,' while what were once called vulgar tastes are now neither uncultivated nor unsophisticated, the mass media have seen to that. At the same time it is becoming less easy to generalize about the kind of people who will use a pub, even though the precise social grading of the customers at a particular house may be as clear as it is limited.

The pub designer is less often catering for a particular class of society, than for special interests within that society—for Chelsea art-snobs, or the car-racing crowd, traditional jazz fans, the clothing trade or the inhabitants of a New Town neighbourhood—and enlightened brewers are tending to set out to attract such sectional clienteles, particularly in redeveloped neighbourhoods where the traditional clientele has been swept away with the sub-standard housing.

The upshot is a problem in styling—to create something that looks like a pub, but also looks like a special kind of pub. For this kind of problem the frame-and-fill tradition offers a ready made solution too instructive to be ignored. The frame offers the kind of mass-producible structure that is likely to be needed, and, at the same time, proclaims that the premises are a pub. The fill, on the other hand, can be treated not only as a solution to certain functional requirements, but also in such a way as to give the pub its required character or sectional interest. Recent restorations of existing frame-and-fill pub exteriors show that the idiom can accept a range that goes from the tastefully-genteel (The Chelsea Potter) to the loud and vigorous (The Champion). The job now is to go on from there—sympathetically styled restorations, new adventures in frame-and-fill for new locations and new customers.



1

The design of pub exteriors will never be reduced to a set of easily-learned rules, because in every case the general pub character is modified not only by local conditions, but also by the function and clientele the pub is intended to serve. These examples give some idea of the range of possibilities.

1, the pub in a country town, whose main function is that of a hotel, but also serves as a business centre—hence the look-out bay windows that command a view of the market. 2 and 3, the pub in the country, with its stables and ancillary buildings, multi-

purpose and barely differentiated from a farm; and the pub in a New Town, taking on some of the character of an urban pub, but retaining some of the detached domesticity proper to its surroundings, without descending to the anonymous genteelism of the pre-war villa-pub.

4 and 5, the true urban pub, at its most palatial and grandiose, and at its most simple and functional. The illustrations on the following pages are concerned exclusively with urban and New Town pubs, because it is in the building and restoration of these two types that the problem of pub character poses itself most acutely and challengingly.



4



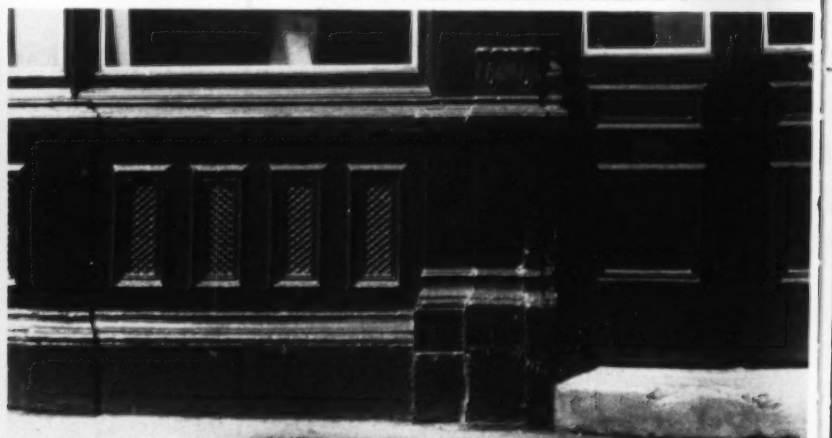
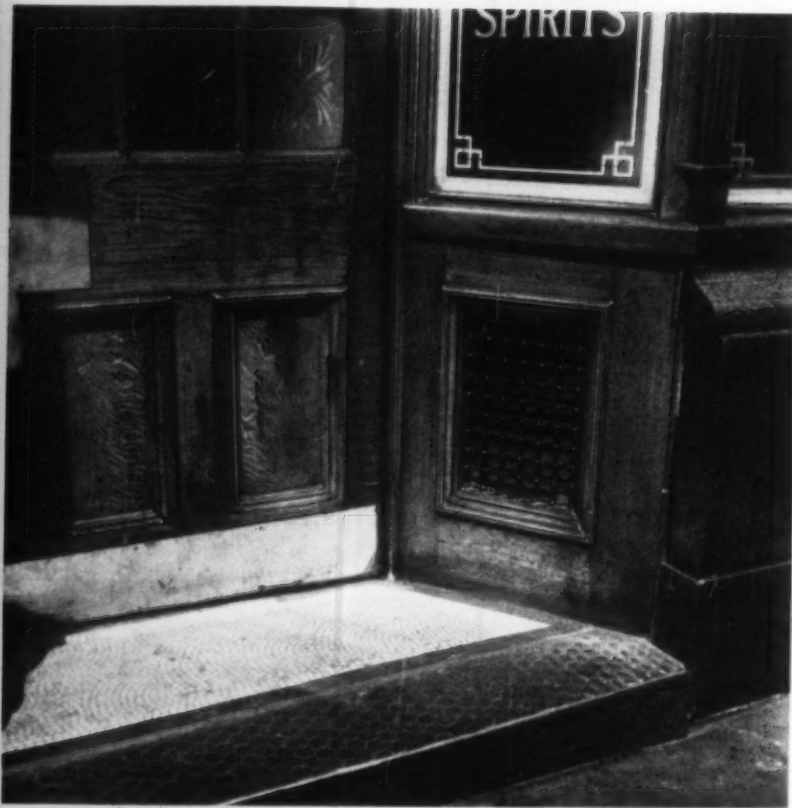
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369



the face of the pub

6	7
8	9
10	11



If ever there was a functional tradition that had immediate relevance today, it is the frame and fill of the urban pub facade, an architecture at once rational and characterful, recognizable and adaptable. Its adaptability lies in its infills and detailing, as in the examples opposite.

6 and 7, the infill must be robust enough for the wear that may be anticipated for it. A permanent pub really needs the metal treads and door-plates, the terrazzo flooring, the massive woodwork and the iron grilles seen in 6, whereas a temporary structure, such as the Britannia in Expo

58 at Brussels is adequately served by the lighter detailing, 7, that still makes convincing pub character, but is also in tune with the exhibition atmosphere.

8 and 9, cills, grilles and panels can be opulent in air, as well as businesslike in per-

formance: the scale and projection of the mouldings play a big part in the overall effect (a lesson we are learning in curtain-calling all over again, in spite of the fact that pubs had spelled it out for us up to a century ago).

10 and 11, another miniature lesson in the aesthetic of repeated grids is furnished by these built-up panels for ventilation

and lighting, robust without being lumpy.

12, 13 and 14, glazed infill above the cill line, traditional, modern (by John and Sylvia Reid) and fanciful, in that order. The contrast between the vernacular simplicity of the framing of 12, and the sophis-

tication of 14 is a measure of the extremes to which the pub tradition can go without losing character.

15 and 16, the elements composed together; 15 unusual in that the frame does not go below the cill (though this is well in character for a pub in a part of Norwich that still boasts many long Tudor windows); 16, on the other hand, offers a classic solution.

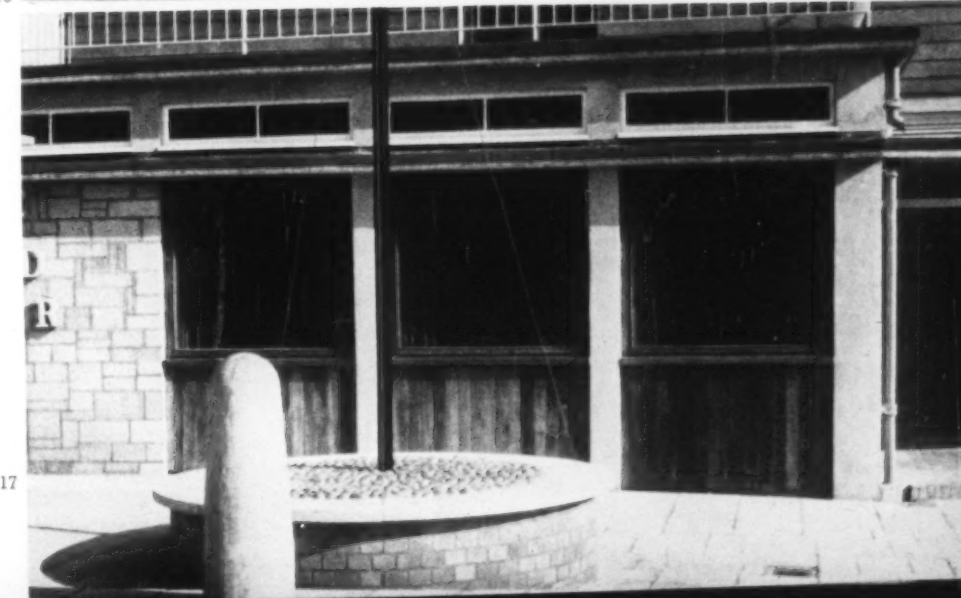
17, the tradition intelligently re-used in a New Town pub (the Pied Piper at Stevenage, by Moore, Simpson and Cleverly).



15



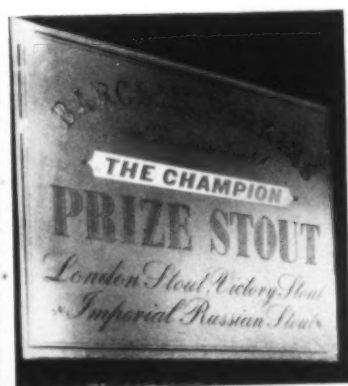
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17



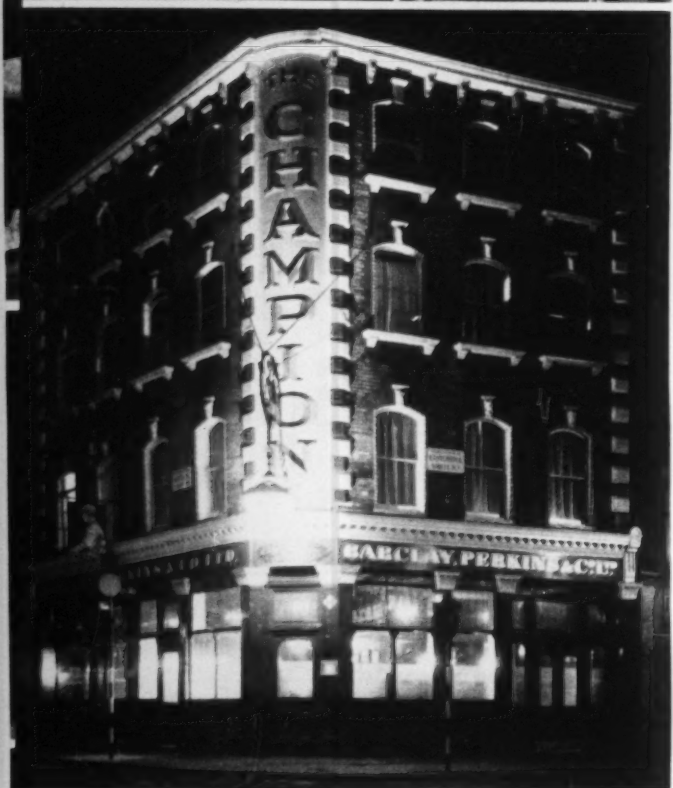
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13



14



18 21
19 22
20 22

The restoration of existing town pubs is one of the trickiest and most rewarding problems facing the designer today. Slavish imitation of period detail threatens museum-like consequences that can be as disastrous as the ham-handed so-called modernizations of the Thirties and Forties. A middle course that is not a compromise, a strong hand that respects the character of the building

are required, and can be seen in all successful examples.

18, one of the most notable of recent restorations (actually a demodernization), Nolan's, in Dublin, by Sam Stephenson, which brings together internationally current architectural usages with those of

the Irish vernacular, such as painted quoining. 19, the best known of sympathetic restorations in London, the Champion, off Oxford Street, by John and Sylvia Reid, in the full blaze of nocturnal splendour that every big-city pub has to be able to produce.

20, the restored pub as a contribution to an undistinguished townscape, the Prince Alfred, opposite a gasworks in Battersea, part of the programme of restoration at present in hand for Watney, Combe and Reid, under the direction of Milner Gray, of Design Research Unit.

21 and 22, not all the restorations in the Watney programme are small locals, though a commendable proportion are deserving cases of that sort, and more specialized houses are included, such as the Pier at Chelsea, which still keeps something of the flavour of a riverside resort, and the Chelsea Potter, an old house made over and re-named for the highly specialized clientele of the King's Road art-world.

23, 24 and 25, detailing plays an important part in securing the right blend of continuity and modernity of all work of this kind: in the Spread Eagle at Bilston, Staffs, 23, the ground floor windows are contemporary enough to partner the lettering, but sufficiently in the functional tradition to live happily with the rest of the building; in the Duchess of York, in Battersea, 24, the house-style lettering used in the Watney programme achieves the right blend, as do the colours; and in the Pier, another of the house-style letter-faces accords well with the opulent architecture.

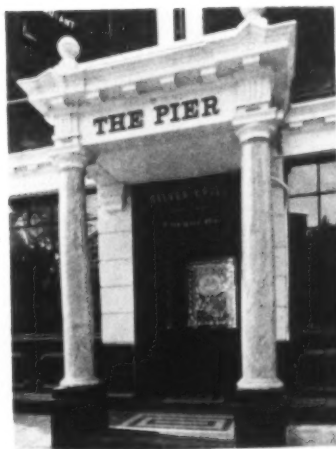
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23



24



25



a

The great bulk of new pubs are on new estates, in new towns, or in redevelopment areas of existing towns—the Mechanics at Hanley, by the architectural department of Ind, Coope and Alsopp, e, and the Riley Arms, Chelsea, by Armstrong and McManus, f, are both situated in partly redeveloped areas, the Monson Arms, Redhill, b, also by Ind, Coope's staff architects, is in an area that is in the process of transformation, the Britannia, g, by



b



c

Edward D. Mills, was in the wholly artificial environment of the Brussels exhibition, the New Bull and Bush, a, by William Blair, is on a new estate outside Derby, while the Pied Piper, c, and the White Knight at Crawley, by Musman and Cousins, d, are in new towns. This may be just as well since, in spite of the growing appreciation of the true pub tradition that may be seen in these examples, we are still a long way from achieving that vernacular ease of manner that would qualify us to design



d



e



g



f

pubs for the test-case setting of an existing, densely-developed urban environment. Yet that must come, and sooner rather than later, as central areas are rebuilt with a growing sense of the urbanity of high-densities. Yet all these pubs, with their common awareness of the rightness of frame-and-fill, show that we are

headed, however belatedly, in the right direction—let us hope that when the pace has to be accelerated there will be pub-architects at hand with the right ideas and the stamina to travel in faster company than they have been asked to so far.



The Seagram Building, seen opposite towering darkly over its famous predecessors in New York—McKim, Meade and White's Racquet Club with its Italianate arches, and Skidmore, Owings and Merrill's Lever Building with its pioneer curtain wall—has been described as the ultimate Miesian building. On the pages that follow, Professor Jordy attempts an assessment of the extent to which the Seagram building fulfils or alters the supposed intentions of Mies van der Rohe's architecture, and Peter Smithson gives the impressions of an English architect after a recent visit.

William H. Jordy

SEAGRAM ASSESSED

Perhaps the most significant aspect of the Seagram Building is its visual weight. In this respect the Seagram participates in a widespread reaction against the ideal of weightless transparency, which, until very recently, has provided the impetus for modern architecture.

From his arrival in America in 1937 until a few years ago, Mies almost exclusively approached the reconciliation of weight with weightlessness by expressing the structural frame of his buildings on the exterior. In the bulk of its cross section and the large scale of its grid, the structural frame—or its symbolic equivalent which Mies applied to the exterior wall as a visible sign of the true structure buried beneath—was dominant. Up to the Seagram (if we except a curved front of the Houston Museum, dictated largely for reasons of site) a simple rectangular mass consisting of floor slabs and supporting columns served Mies much as canvas served Mondrian.

In such structures, three variations are possible. The outer edge of the columns may be *flush* with the outer edge of the slabs. They may *project* outside the edges of the slabs. Finally, they may be *recessed* with the floor slabs cantilevered. With Mies' interest in visible structure, he inevitably concentrated on the first two solutions in his early work in America. The first solution appeared notably in most of the buildings for the Illinois Institute of Technology and in 860 Lake Shore; the second in the Farnsworth House, the Promontory Apartments and the IIT Crown Building. In only a very few minor projects, never executed, did he address himself during these years to two other structural solutions: the curtain wall with structure recessed and the pavilion concept of the slab supported on slender recessed columns. Yet

it was precisely these structural schemes, almost completely abandoned in Chicago, which had pre-occupied him in Europe.¹ Excited by the naked revelation of the metal-framed Chicago skyscrapers, Mies sought to incorporate their boldness, while eliminating their crudeness, in his esthetic of *Baukunst*. For seventeen years, with that single-mindedness which distinguishes his meticulous genius, Mies devoted himself to the problem which Chicago architects of the late nineteenth century had posed.

Ironically, however, the solution for the metal and glass building which initially attracted Mies so slightly in his American career became the standard approach by 'Miesians' and those who, with more or less comprehension, followed in their wake. Gordon Bunshaft's design for Skidmore, Owings and Merrill's Lever House, together with that for the nearly contemporaneous United Nations Secretariat, convinced the public (and hence clients) of the dramatic possibilities inherent in the metal and glass skyscraper. Both were products of the tradition of weightlessness: the one a weightless interpretation of Miesian ideals; the other substantially a throwback to the weightless conceptions of Le Corbusier in the twenties. It was at least two years after the completion of the Lever House, when a number of weightless glass skyscrapers were either built, building or planned, before Mies projected the first of two Chicago apartment complexes—the Esplanade and Commonwealth Apartments—in which he enveloped the structural skeleton within a metal and glass curtain wall. We cannot discuss them here; but they lead to the Seagram Building.² With all odds favouring a weightless result when Mies employed the curtain wall for the Seagram, he refuted reasonable expectations. In this

¹ Apparently, Mies' only revelation of the frame on the exterior of his European work appears in two buildings. His German Electrical Industries Exhibit for the International Exhibition at Barcelona (1929) significantly shows a structural outrigger on the exterior which foretells his projecting I-beam details in America. A project for the administration building of the silk industry in Krefeld (1937), done just prior to his emigration to America, uses a framed wall. In the United States, on the other hand, from 1937 to 1954 only two projects positively do *not* reveal a skeleton on the exterior: the unexecuted projects for the Resor House (1938) and the Museum for a Small City (1942) are composites of the pavilion idea and the curtain wall.

² Another bit of irony: just as Mies comes to the curtain wall with recessed structure, a spate of metal and glass skyscrapers begin to appear with projecting columns in an effort to create a sculptural effect as an antidote to weightlessness. Again Skidmore, Owings and Merrill have been the pacesetter with their interesting Inland Steel Building in Chicago which might be described as a tower of Farnsworth Houses with a utility spine to the rear. Although the supports project extravagantly, Inland Steel is visually far lighter than 860 Lake Shore where the structural gridding is flush or Seagram with its recessed columns.

refutation, with what is visually, all things considered, the first weighty skyscraper to be completely enveloped in its glass window wall, lies the meaning of the Seagram.

It is the simplicity of the dark cliff of dull bronze and the dark grey-amber glass rising sheer from its plaza which strikes us first. Walking along Park Avenue, we come upon it suddenly—or rather we *will* come upon it suddenly once the block adjacent to it on the north (and across from Lever House) has been built upon.³ Then, because the Seagram is so deeply set on its plaza (about 90 feet back from the street), it will take us by surprise from most approaches, with something of the impact of the Palazzo Farnese when we step into its plaza. Space in front; cliff behind. The space emphasizes the density of the cliff. Its restricted depth enhances the looming quality of the building. We look up automatically. The verticality of the windows and the unbroken run of their projecting I-beam mullions through 38 storeys encourage the act by which we measure the scale of the building and seize its unity. —

Fortunately, the excellence of the Lever House diagonally across the street offers a rare opportunity to contrast different approaches in significant curtain walled skyscrapers. Lever House is seen for a considerable distance up and down Park Avenue. This fact, and the small size of the building (a mere 21 storeys) made smaller by its dramatic cleavage into two masses, permitted Bunshaft to unify the building as two tautly wrapped packages easily perceived in their entirety. This conception of the metal and glass building as weightless packages lightly juggled in mid-air looks back to the early works of Le Corbusier, even if their grids are Mies-inspired, while the right-angled discreteness of the horizontal and vertical masses suggests 860 Lake Shore levitated. The stilting, small in scale and made more so by the tendency of their shiny metal covering to ripple the light, is tucked well under the building to intensify the floating sensation of the volumes above.

The Seagram Building, on the other hand, meets the earth firmly on heavy, two-storey stilting. The dark, rigid surfaces of these pilotis give them a visual persistence reminiscent of Greek columns. Thus, although we perceive the stilting as a composite entity, *each* stilt also appears as an entity in itself. This visual weight of each of the parts—rarely as weighty in fact as the stilts, but psychically 'weighty' in the meticulous attention lavished on every piece before its assemblage—proclaims Mies' ideal of construction, more Hellenic perhaps than Renaissance. (But we shall return to this distinction.) The total form occurs not by wrapping around, but by building up.

In Lever House, the glass-walled lobby sits athwart the plaza, and is so approached from either side that we look through it to more plaza beyond. Columns, planting and pavement provide continuity through the plate glass barrier, so that indoors and out visually intermingle. By way of contrast, no such spatial

jeu d'esprit between inside and out occurs in the Seagram. Space and cliff. The space fronting the Seagram Building is austere formal and empty. Formal in that, if we use the front entrance at all (there are two side entrances opening on 52nd and 53rd Streets), we must approach the building on axis, usually at a slight diagonal. Empty in that nothing exists on this broad central slab—if we except the flag-pole to one side, absolutely nothing. There are no planting boxes, no displays, not even benches. Nothing could be further from the somewhat over-stuffed, almost too popular, outdoor space at Rockefeller Center, jammed with its rather stationary throngs. Human figures moving in long diagonals across the pristine, pink granite Seagram slab evoke Giacometti figures. The rows of jets to either side measure the axial progression and provide the contrast of movement and noise to the empty space. The fountains will be ultimately fronted by sculpture set on slabs at water level. (Too bad perhaps that the fountains were not extended, and the planting close to the building eliminated, as was at one time briefly contemplated. The building should rise from its fountains. Then the slab would have appeared truly as a bridge from street to entrance.) Finally, low, chunky, green marble parapets bound the plaza to either side. It is to these that idlers are banished, unfortunately treading a narrow ledge behind the fountain pools to gain their seats. No American plaza is so uncompromisingly permeated with the spirit of the Renaissance.

The plaza continues uninterrupted under the building to floor the recessed glass-walled lobby. A slab marquee overhead echoes the plane underfoot as a herald of shelter. The counter-movement of the plaza slab inward and the roof slab outward celebrates the smooth coupling of inside and out, made smoother by the fantastic refinement of an 'astroclock' which adjusts light in the lobby to that out of doors. This coupling of indoors and out is precisely that—a collision rather than flaccid 'flow.' Within the lobby, the slab-ends of the elevator shafts firmly back up each of a double row of stilts. Penetrated by corridors to be sure, the dominating solids nevertheless reassert the density of the building mass. As a result, there is a ceremonial grandeur in the merger of plaza and lobby. Space and cliff: the opposition reconciled and dramatized, again as in a Renaissance palace, by a majestically scaled portal.

Towering above the plaza and its portal, the window wall impresses us first by its colour. The very darkness of the building gives it weight. Most designers of metal and glass buildings have thus far sought a sharp contrast between the metal grid and window or panel units. In the Seagram, the combination of dull bronze and grey-amber glass is strikingly handsome, except that, like most glass buildings, it does not take kindly to intense, raking light. In such brilliance it can elude visual grasp in an unpleasantly pale purplish glare. The facade appears to best advantage in late afternoon sun, as shadows climb the lower storeys. Then the grid glows with warm browns occasionally brightened to dull gold; the glass, with browns, violet tinged toward the ground where it reflects other buildings and pale

³ This block was to have boasted a gold tower with yet a third substantial plaza at the intersection of Park Avenue and 53rd Street. Fortunately, plans fell through, and with them the threat of a Park Avenue prairie at this corner. A bulky money-maker now building on the block will suitably wall the Seagram plaza. For once greedy coverage deserves applause.

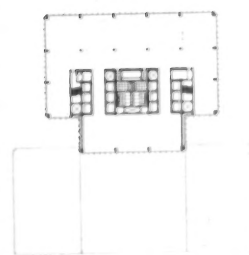
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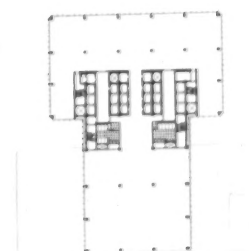
1 and 2, seen from the side, in a view that emphasises how the much-discussed 'bustle' ties it in with the buildings behind, the Seagram tower appears, as was to be expected, as a cage of light by night, but appears by day much more solid than previous Miesian towers. These flanking views, made possible by the clearance of the adjoining site (which will in time be fully built up, forming the third side of the Seagram plaza) reveal an order and visual logic in the relationship of the main block to the various projections at its back that have previously only been apprehensible in the plans.

architects: Mies van der Rohe and Philip Johnson
director of planning: Phyllis B. Lambert
associate architects: Kahn and Jacobs

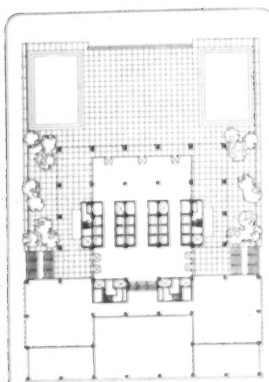




plan at tower level



plan at intermediate level



plan at ground level

3, the massive columns of the substructure of the Seagram Building, prolonging the vertical lines of the mullions, give a sense of weight, of a building resting solidly on the ground, rather than tethered to it in a fit of airy levitation, as has been the effect with some of Mies's imitators. The proportions of the panes of glass, narrow from mullion to mullion, tall from spandrel to spandrel, are those of the windows of a renaissance Palazzo, and it is their separate identity, rather than the continuity of the glass wall that is emphasized.

4, the jets of the fountains, insubstantial but regularly spaced, establish a rhythm that extends across the whole foreshore of the plaza, and gives the human figures that traverse it the air of the purposeful matchstick men of a Giacometti sculpture.

5, the relation between the inside space of the foyer and the outside space of the plaza, is by no means the easy ambiguous flow of the modern movement tradition, in spite of the balancing of artificial and natural light—it is rather the collision of two worlds separated by a glass membrane. The height of the foyer, added to the depth of the plaza, gives a view of far more of the vertical height of the facing buildings that enclose the plaza than would be possible if the front wall of the foyer stood forward to the building line, and the sense of enclosure is enhanced without becoming claustrophobic.





6



7

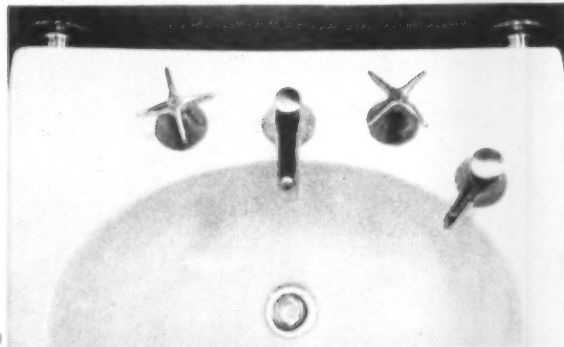
6 and 7, in sunlight or in shadow, the walls of the Seagram Building have a greater visual density, and stronger sense of verticality than in Mies's earlier slab towers, an effect that arises largely from the narrower bay-width employed here, as compared with Lake Shore Apartments (see the diagrams below).



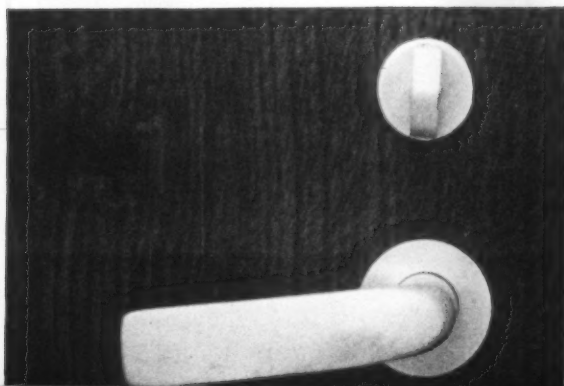
8, the reception area of the main floor occupied by Seagrams, looking back toward the elevators, along the central axis of the T-plan service spine.
9, 10 and 11, purpose-designed interior details: numerals by Elaine Lustig; the plumbing fixtures and door furniture by the architects — in neither case has the generous budget deflected them from the doctrine of "less is more," the order of the day remains a simplicity that is, in every sense of the word, studied.



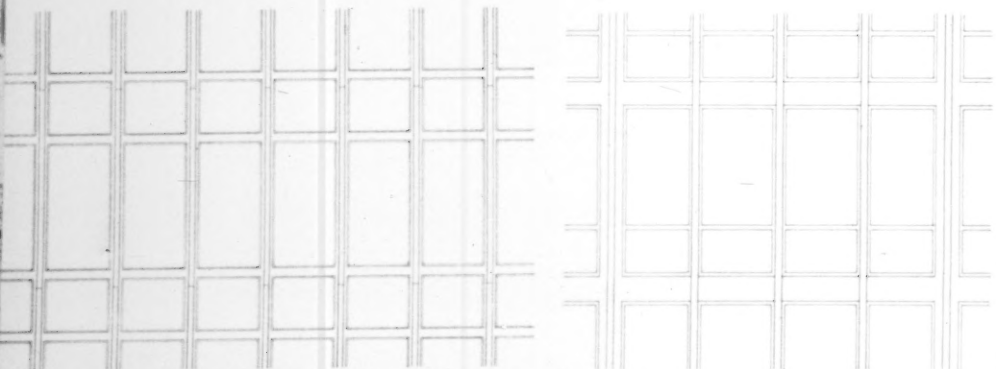
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10



11



above comparative elevations, left, Seagram; right, Lake Shore Drive, Chicago.

blue where it catches the sky. The muted harmony of the colour reinforces the solidity of the cliff. The grid never asserts itself at the expense of the wall, never disintegrates into blinding streaks of light as does the bright-work of Lever House.

Moreover, where Lever House and practically all metal and glass buildings are designed for a perpetual present, the Seagram Building is the first major metal and glass skyscraper consciously designed to age as masonry buildings age. With time the bronze will darken and acquire a green patina. This corrosion of the surface should further unify the window wall as a massive entity.

But detailing as well as colour accounts for the weighty effect of the curtain wall. Since the Seagram wall is shadowy, we cannot grasp it at a glance. We must peer for its refinements, much as we must peer at a Quattrocento palace to see the elegant precision which builds to such bold effect. In essence the Seagram wall looks back to 860 Lake Shore, but meticulously refined, since all of Mies' solutions provide the starting point for further elaboration. Although he lost the weight of the exposed structural grid of the Lake Shore by recessing the structural columns of the Seagram, he retained the projecting I-beam mullions welded between each of the windows. As in Lake Shore, these projections give depth, shadow and (by transcending the individual window units) scale to the wall, while also providing the symbolic pilasters of his *Baukunst*. Even in these projecting fins, refinements appear over the Lake Shore version. Thus Mies has specified a lip on the underside of the I-beam to sharpen the shadow. Whereas other architects generally have tried to make their metal walls appear as seamless as possible, Mies frankly asserts the breaks occurring between each increment of the I as it mounts the building. In revealing so decisively the breaks in his I-beam mullions for the Seagram, he creates a metal stereotomy which again relates his structure to the masonry tradition.

A more conspicuous adjustment of the Lake Shore wall appears in the window proportions. These are narrower. Thus the projecting I's come closer together in the Seagram to give the wall a greater visual density, and simultaneously accentuate its verticality. This close knit quality of the wall is enhanced by one of the subtlest transformations of the Lake Shore prototype. An inset moulding runs around the perimeter of each of the spandrel panels. Instead of the contrast in colour and material which separates frame from window in the Lake Shore (where the dull black grid abuts the silver aluminium enframing of the clear glass window), a linear shadow appears in the Seagram, now muffled, now sharp, depending on the light. Instead of the projecting I-beams clinging directly to the outside face of the horizontals as in the Lake Shore gridding, a linear shadow appears to either side of the I's in the Seagram. If this inset detail (made famous in the buildings for IIT) separates the vertical I's from the spandrels, it also visually draws the I's into the wall. They do not project from a surface, but emerge from slight shadow. In short, wherever we compare the two buildings, the doctrinaire starkness of the Lake Shore gives way to the luxurious subtlety of the Seagram—the one as appropriate to

the Chicago of Holabird and Roche as the other to the New York of McKim, Mead and White.

But the visual weight of the Seagram tower depends not only upon its wall, but its proportions as well. In the Seagram Mies employed the same 3:5 ratio of depth to width for the tower which he used for his Lake Shore complex. In contrast to an almost 1:4 ratio for the Lever tower, Mies' classical proportions repudiate the exaggerated thinness of the slab, so congenial to weightlessness. Moreover, the Seagram tower is actually a stubby-T by virtue of its protruding spine. Toward the base of the building the spine provides a recessed link to flanking wings behind, stepped from five stories at the lot line to ten stories at the centre where it abuts the spine. The play of simple rectangular masses across space which dominates Mies' Chicago work and, especially in the Lake Shore, provides a dynamic spatial foil for the calm of the buildings, here disappears. The building congeals into a dense, complex mass, the T of the tower hugging the inverted T of the flanking wings behind. In contrast to the Lake Shore, which has no facade and which we experience in the process of circling it, the Seagram is rigidly frontal. Like McKim, Mead and White's 1918 Racquet Club opposite, as Arthur Drexler has observed, it is 'classically and hierarchically composed.'

The abstractness of the massing is nowhere more obvious than in the spine at the back. At first glance we guess its purpose to be a container for elevators and the utility core. This initial impression seems the more likely since the sides of the spine are infilled with grey-green marble slabs as though designed to screen the mechanical equipment. (They do screen wind bracing.) But the elevators rise within the tower. At the ground floor, the spine is a recessed entrance, while a look at the plans indicates that from the eleventh floor up it serves as office space. Only for the second through the tenth floors does it contain the overflow, so to speak, of utilities. Once the low bank of elevators has dropped out, toilets, firestairs and vertical ducts recede to the tower between the high rise elevators that remain. The T-shaped utility core becomes rectangular. As the external massing plays the rectangular bulk of the tower (for thus we initially perceive it) against the T shapes of the ensemble, so rectangles and T's appear throughout the plan in an interlocked relationship which is new in Mies' work and of a piece with the close knit quality of the wall. For subtle, yet majestically simple, planning, the interlocked rectangles of the lobby floor merit particular study. The progression—from the peripheral stilted, to the glass enclosure, to the dense elevator core, reproduces in plan the hierarchical quality of the massing.

The dignity of the exterior appropriately extends inside. Here, if a continuous collaboration under Mies' domination can be dissected, Philip Johnson's contributions are especially evident. Probably not since the less ambitious custom-designing of Howe and Lescaze's Philadelphia Savings Fund Society Building of 1932 have the interiors of any modern American office building planned for rental received such meticulous consideration. It is impossible to do justice here to the care lavished on the custom design of elevator cabs, lighting, office partitioning,

hardware, plumbing fixtures, typography, and the other important, but habitually neglected, interior details in commercial buildings.

Daytime or night-time, door knob or window wall, building mass or space in front: whatever we examine we discover this exhaustive design in depth, where design is not a virtuoso end in itself, but the complete embodiment of a severe conception. If a lavish budget permitted a finish and subtlety which Mies has not known since his (much simpler) Barcelona Pavilion and perhaps the exterior of the Farnsworth House, this largesse never deflected him from that composite of Hellenic and Renaissance disciplines which makes the Seagram what it is.

His Hellenism of course provides the core of his esthetic: the large, weighty, perfected part combined in a manner which is actually or symbolically structural. But Mies' Hellenism is peculiarly Germanic. His temperament implies the initial control of emotion as it focuses on the fabric piece by piece, scraping, simplifying, adjusting. Eventually the piece catches fire from the suppressed passion expended on it and, in Mies' well-known aphorism, less does indeed become more. Inevitably perhaps such a dissecting temperament completes its Hellenism in the formalistic rigor of the Renaissance. A hierarchical massing; an architectonically controlled opposition of mass and space; a rigidly rectangular relation of part to part; a linear

and planar detailing; a light which is clarifying and subtilizing rather than luminous (this latter impossible anyway in America): these are the Renaissance elements in Mies' esthetic. Where the *Baukunst* is Hellenic, the *Formkunst* is Renaissance.

Hence the Seagram stands as the consummate embodiment, thus far, of tendencies which have been steadily emerging in Mies' work—a veritable catechism of his Renaissance-Hellenism. The formidable discipline evident in every aspect of the building should, however, discourage piecemeal cribbing by those seeking easy effects. Far better an architecture of weightlessness which at very least promises elegance and vivacity (alas, too rarely attained) than a lightweight interpretation of weightiness which is almost predestined to pomposity and inertness. Comparable boldness in modern commercial architecture is indeed difficult to find. Lewis Mumford correctly retreated to John Wellborn Root's Monadnock Building of 1891. Both, in turn, evoke Richardson's Marshall Field Wholesale Store of 1886 and Sullivan's praise in the *Kindergarten Chats*: 'it stands as the oration of one who knows well how to choose his words, who has something to say and says it—and says it as the outpouring of a copious, direct, large and simple mind.'

It is the commanding sense of a human presence which finally accounts for the visual weight of the Seagram.

footnote on the Seagram building by Peter Smithson

No other men have succeeded as have Le Corbusier and Mies van der Rohe in building complete systems.

Their concentration is such that the nature of their systems is implicit even in the fragment. One has, for example, a perfectly clear notion of the sort of city and the sort of society envisaged by Mies van der Rohe, even though he has never said much about it. It is not an exaggeration to say that the Miesian city is implicit in the Mies' chair.

Le Corbusier's system is of course more familiar because of his constant reiteration of the part even his smallest objects play in his general scheme of things. And what validates both their systems is that they are conceived in the terms of the technology of their time and that both men have a capacity for rejection and reconsideration in the face of changing circumstances.

375 Park Avenue is a fragment, one feels, of a city of towers. But this city does not exist. What does exist is a corridor street called Park Avenue with its own undeniable life, and therefore some right to continuing existence, or at least re-validating modification. We have to ask, 'Does the fragment communicate the dream, at the same time coming to terms with reality, or does it in any way not meet these requirements either by intention or by default?' The building in its uncompleted state, seemed to the technician (who had also available the published

drawings and photographs of the model) as well as to the ordinary observer to be a 'dry-stick.' This was perhaps due to a built-in resistance to academic disciplines which seem at the same time too unsubtle to the technician and too subtle to the man in the street. But Mies has in the past extended neo-classical disciplines far beyond what seemed possible: and of course he has done it again. The symmetry of Seagram seems entirely justified for it quite regenerates the Racquet Club which forms the other side of its piazza.

The Seagram Tower certainly communicates a dream of a controlled, spacious, machine age environment, even at the popular level, and it faces the issue of coming to terms with the corridor street idea. Its long axis is parallel to Park Avenue, and this minimizes the destruction of the street which the creation of an open space involves, and its bustle marries it to the cross-streets.

One is however nagged by the idea that the unit of redevelopment is too small for radical space change, and that the Rockefeller Centre which maintains the Avenue frontage, and at the same time builds up a new life space behind, is a more real, even a more poetic ideal. But at the same time one cannot deny the fact that Park Avenue is so over-built that it has ceased to have any validity as a street and screams out for 'pools of calm' however they can be got.

Arthur Drexler has written in the *Architectural Record* of the historical ante-

cedents of the Seagram Tower, but unfortunately his piece seemed to have been cut short at the point at which he would, one assumes, have explained how de Stijl and neo-classicism are reconciled.* The magic of Mies lies precisely in being able to perform this remarkable trick.

How much of the successful accomplishments of this particular piece of sleight of mind was due to the collaboration of Philip Johnson is a little difficult to assess.

Philip Johnson would be the first to give the entire credit for the conception to Mies van der Rohe, but his own house at New Canaan shows that the canon can be, if not transcended, at least dimensionalized, that is, given a feeling of actual rather than abstract existence. One wants to touch it. And this quality 375 Park Avenue certainly has. What faults it has seem to start behind the external skin. One is worried by an arbitrariness in the relationship between the supporting columns and the mullions seen from the outside, and on the inside they are clumsy in the office spaces.

The inside spaces are fine when they are simple and one can see the outside, but none of the suites of rooms which have been specially designed seem to have any relationship with the fundamental organization of the building, or to utilize the potential relationship between the outside space and the views. It may be that a Mies building can only really have one sort of internal space

* Both are of course in essence classical aesthetic techniques.

Kenneth Browne

BACKLAND

Essex County Planning Dept. (S. Area) has invited the A.R. to examine and criticize their plan for a pedestrian shopping centre at Romford and in this article Kenneth Browne looks at the scheme and suggests modifications to bring out the townscape possibilities of Romford's backlands.

Frankly, Romford is the last place where you would expect anything of architectural interest to happen. However, the outline scheme for a pedestrian shopping centre there, recently published by the Essex county planners, gives promise of something well worth studying.

Ugly as it is, Romford is a boom town. The main shopping centre east of London and the busiest in Essex, it draws customers from Ilford, Hornchurch, Dagenham and even Harlow. Main roads cross at its centre, 2, and as the streets are narrow and lined with parked cars, the congestion is terrific. Land values in the centre have risen to £3,000 a foot frontage and shopkeepers are bursting their seams to expand. At the same time, immediately and invitingly, behind the shops is a 12-acre block of undeveloped backlands, *b*, in surprising and welcome contrast to the jam-packed streets, being semi-rural and consisting of nursery, gardens, bowling greens and orchards, *1*.

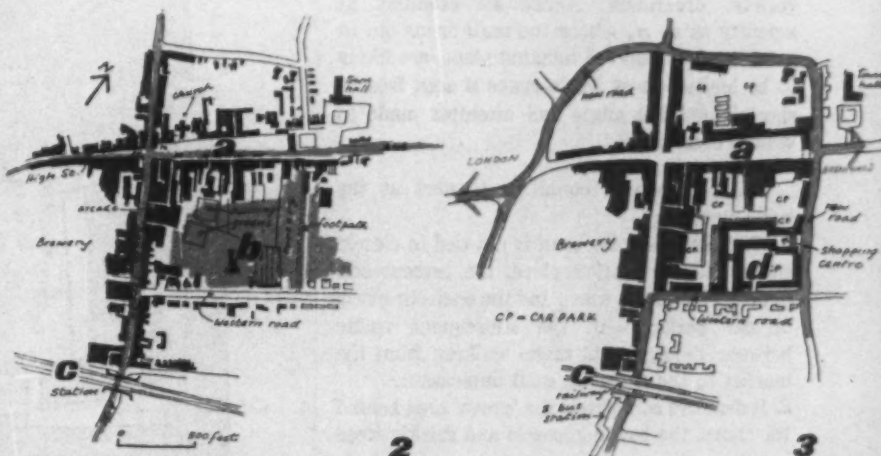
For years the local shopkeepers have been demanding to be allowed to rebuild and, to avoid chaos, the county planners have now been forced into doing something about it. Together with a committee set up by the shop owners, they have worked out a scheme, *3*, aimed at using the backland to provide more shopping space, *d*, employing the land more economically than would have been possible if each landowner rebuilt on his own.

At the same time the traffic problem is tackled by cutting new roads so that through traffic can by-pass the centre. This looks like a bit of really positive planning for a change.

At present there is just one thing that saves Romford from complete anonymity and that is its market place, *a*, with church in one corner. Short of wiping the slate clean and starting from scratch, this is the one thing the planner can



An air view of the centre of Romford 1 shows the market place *a* and behind the shops a semi-rural area of undeveloped backland *b*. At present traffic arteries cross at the centre 2 choking the streets and disrupting the market place. The new plan 3 relieves the traffic problem and provides a new shopping mall *d* in the backlands.



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Their concentration is such that the nature of their systems is implicit even in the fragment. One has, for example, a perfectly clear notion of the sort of city and the sort of society envisaged by Mies van der Rohe, even though he has never said much about it. It is not an exaggeration to say that the Miesian city is implicit in the Mies' chair.

Le Corbusier's system is of course more familiar because of his constant reiteration of the part even his smallest objects play in his general scheme of things. And what validates both their systems is that they are conceived in the terms of the technology of their time and that both men have a capacity for rejection and reconsideration in the face of changing circumstances.

375 Park Avenue is a fragment, one feels, of a city of towers. But this city does not exist. What does exist is a corridor street, called Park Avenue with its own undeniable life, and therefore some right to continuing existence, or at least re-validating modification. We have to ask, 'Does the fragment communicate the dream, at the same time coming to terms with reality, or does it in any way not meet these requirements either by intention or by default?' The building in its uncompleted state, seemed to the technician (who had also available the published

drawings and photographs of the model) as well as to the ordinary observer to be a 'dry-stick.' This was perhaps due to a built-in resistance to academic disciplines which seem at the same time too unsuitable to the technician and too subtle to the man in the street. But Mies has in the past extended neo-classical disciplines far beyond what seemed possible; and of course he has done it again. The symmetry of Seagram seems entirely justified for it quite regenerates the Racquet Club which forms the other side of its piazza.

The Seagram Tower certainly communicates a dream of a controlled, spacious, machine age environment, even at the popular level, and it faces the issue of coming to terms with the corridor street idea. Its long axis is parallel to Park Avenue, and this minimizes the destruction of the street which the creation of an open space involves, and its bustle marries it to the cross-streets.

One is however nagged by the idea that the unit of redevelopment is too small for radical space change, and that the Rockefeller Centre which maintains the Avenue frontage, and at the same time builds up a new life space behind, is a more real, even a more poetic ideal. But at the same time one cannot deny the fact that Park Avenue is so over-built that it has ceased to have any validity as a street and screams out for 'pools of calm' however they can be got.

Arthur Drexler has written in the *Architectural Record* of the historical ante-

cedents of the Seagram Tower, but unfortunately his piece seemed to have been cut short at the point at which he would, one assumes, have explained how de Stijl and neo-classicism are reconciled.* The magic of Mies lies precisely in being able to perform this remarkable trick.

How much of the successful accomplishments of this particular piece of sleight of mind was due to the collaboration of Philip Johnson is a little difficult to assess.

Philip Johnson would be the first to give the entire credit for the conception to Mies van der Rohe, but his own house at New Canaan shows that the canon can be, if not transcended, at least dimensionalized, that is, given a feeling of actual rather than abstract existence. One wants to touch it. And this quality 375 Park Avenue certainly has. What faults it has seem to start behind the external skin. One is worried by an arbitrariness in the relationship between the supporting columns and the mullions seen from the outside, and on the inside they are clumsy in the office spaces.

The inside spaces are fine when they are simple and one can see the outside, but none of the suites of rooms which have been specially designed seem to have any relationship with the fundamental organization of the building, or to utilize the potential relationship between the outside space and the views. It may be that a Mies building can only really have one sort of internal space . . .

* Both are of course in essence classical aesthetic techniques.

Kenneth Browne

BACKLAND

Essex County Planning Dept. (S. Area) has invited the A.R. to examine and criticize their plan for a pedestrian shopping centre at Romford and in this article Kenneth Browne looks at the scheme and suggests modifications to bring out the townscape possibilities of Romford's backlands.

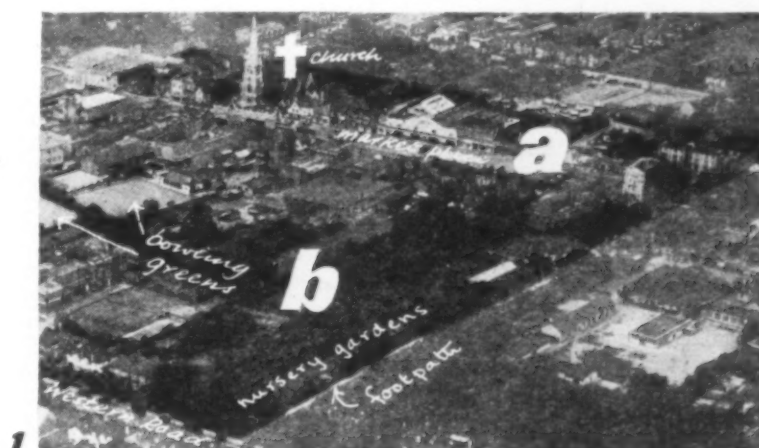
Frankly, Romford is the last place where you would expect anything of architectural interest to happen. However, the outline scheme for a pedestrian shopping centre there, recently published by the Essex county planners, gives promise of something well worth studying.

Ugly as it is, Romford is a boom town. The main shopping centre east of London and the busiest in Essex, it draws customers from Ilford, Hornchurch, Dagenham and even Harlow. Main roads cross at its centre, **2**, and as the streets are narrow and lined with parked cars, the congestion is terrific. Land values in the centre have risen to £3,000 a foot frontage and shopkeepers are bursting their seams to expand. At the same time, immediately and invitingly, behind the shops is a 12-acre block of undeveloped backlands, **b**, in surprising and welcome contrast to the jam-packed streets, being semi-rural and consisting of nursery, gardens, bowling greens and orchards, **1**.

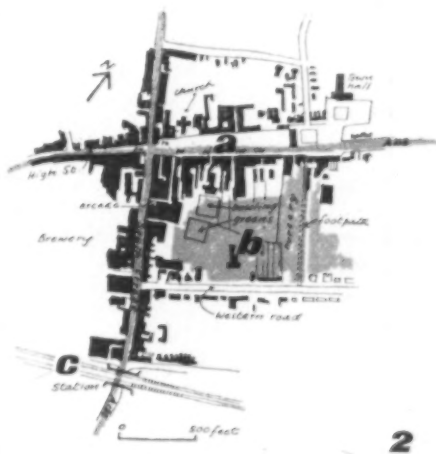
For years the local shopkeepers have been demanding to be allowed to rebuild and, to avoid chaos, the county planners have now been forced into doing something about it. Together with a committee set up by the shop owners, they have worked out a scheme, **3**, aimed at using the backland to provide more shopping space, **d**, employing the land more economically than would have been possible if each landowner rebuilt on his own.

At the same time the traffic problem is tackled by cutting new roads so that through traffic can by-pass the centre. This looks like a bit of really positive planning for a change.

At present there is just one thing that saves Romford from complete anonymity and that is its market place, **a**, with church in one corner. Short of wiping the slate clean and starting from scratch, this is the one thing the planner can



An air view of the centre of Romford **1** shows the market place **a** and behind the shops a semi-rural area of undeveloped backland **b**. At present traffic arteries cross at the centre **2** choking the streets and disrupting the market place. The new plan **3** relieves the traffic problem and provides a new shopping mall **d** in the backlands.



and must start from—the only thing by which you know Romford from a hundred other similar places. On market days it is really lively; hundreds of stalls jammed tight and the five market place pubs doing a roaring trade while the bustle and activity continues down arcades forking off north and south from the market itself. Yet for many years the local council have intended to 'solve' the traffic problem by widening streets, including that running through the market place. They should now drop that idea for besides being fundamentally bad, because it encourages cars where they are not wanted, it sacrifices the homogeneity of the market place, which should be pedestrian priority.

A plan of the new shopping centre, 5, shows a dog-leg pedestrian mall flanked by shops and surrounded by car parks, P. It is reached from the main shopping streets by a new arcade and pedestrian way and a sitting-out space under trees is provided for relaxation, e. The aim, to quote the press handout, is 'to create for the shopper conditions which make that job an entertainment and a pleasure . . . a relaxation rather than what it is today, a mad and dangerous scramble over and about heavily trafficked streets.'

In addition to the shops, a large amount of office space is to be provided here to meet decentralization from London, and a seven-storey slab block, 4, is shown placed across the N.E. entrance to the mall, f.

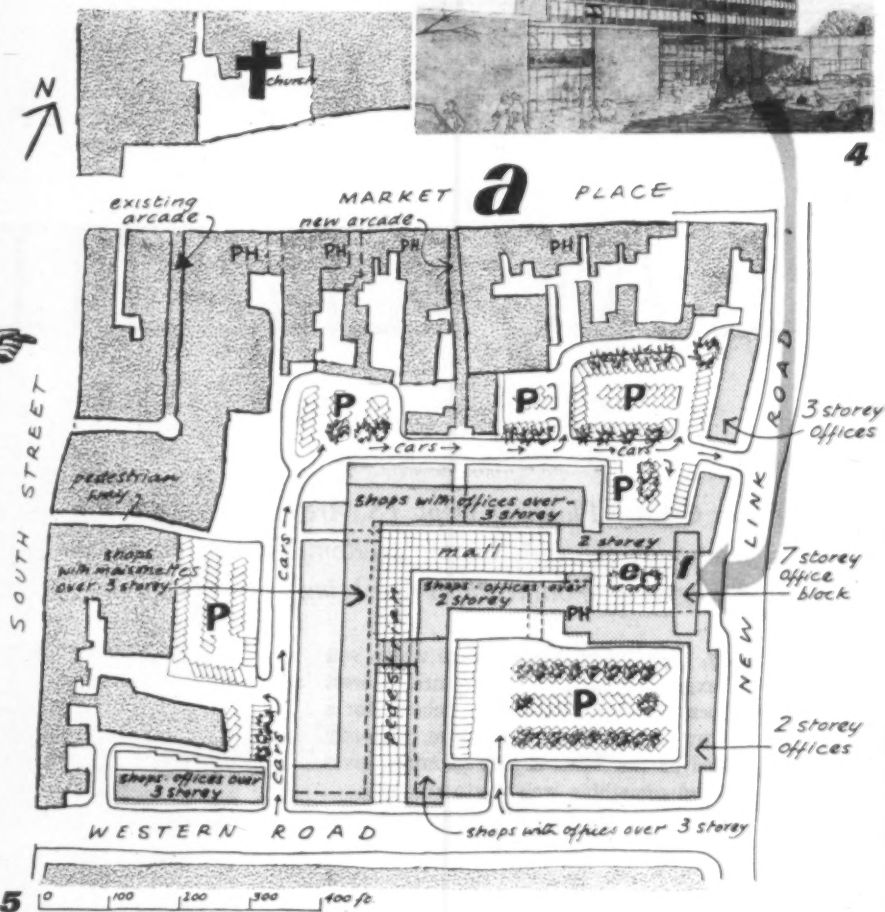
This plan is the basis for a final scheme to be designed and carried out by an investment company and preliminary negotiations are now in progress.

All this sounds fine, but everything depends on how this initial plan is developed by the investment company's architects. It says much for the planners that they have persuaded the tradesmen to accept this kind of humane approach to buying and selling at all for the majority still think a congested main street, with a bus stop outside the door, is the best position for a shop. All the same, they may still have to contend with each shopkeeper watching jealously to see that his rivals don't get an advantage. If this happens it is bound to lead to conformity in the bad sense—lack of variety, dreariness. Again all attempts at amenity as at e, where the mall opens out to provide a tree-covered relaxing place, are likely to be looked on as waste space if seen from a shortsighted fnd angle and attempts made to whittle them away.

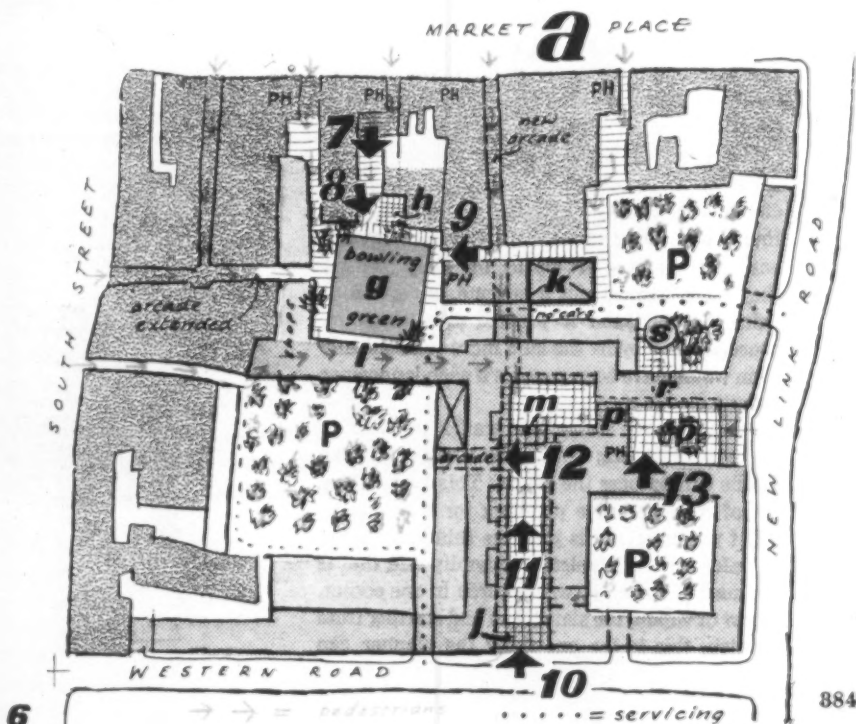
Criticisms which could be levelled at the basic plan are:—

1. The new shopping mall is not tied in closely enough to the market place, the present and natural hub of the town, and the encircling ring of car parks, with the consequent traffic between them, would make walking from the market to the shopping mall unpleasant.
2. It destroys completely the 'green' area behind the shops, the bowling greens and thickly treed

The plan of the new shopping centre 5 (in red) shows a 7-storey office block 4 lying across the E. entrance to the mall. A ring of car parks P comes between the old market place 2 and the new centre.



In the sketch plan suggested by the author 6 tall building would be concentrated at the centre, as k, to mark the heart of the shopping zone. There would be no intercommunication between car parks, now thickly planted, and the new centre would be tied more closely to the market place. An existing bowling green g is retained.



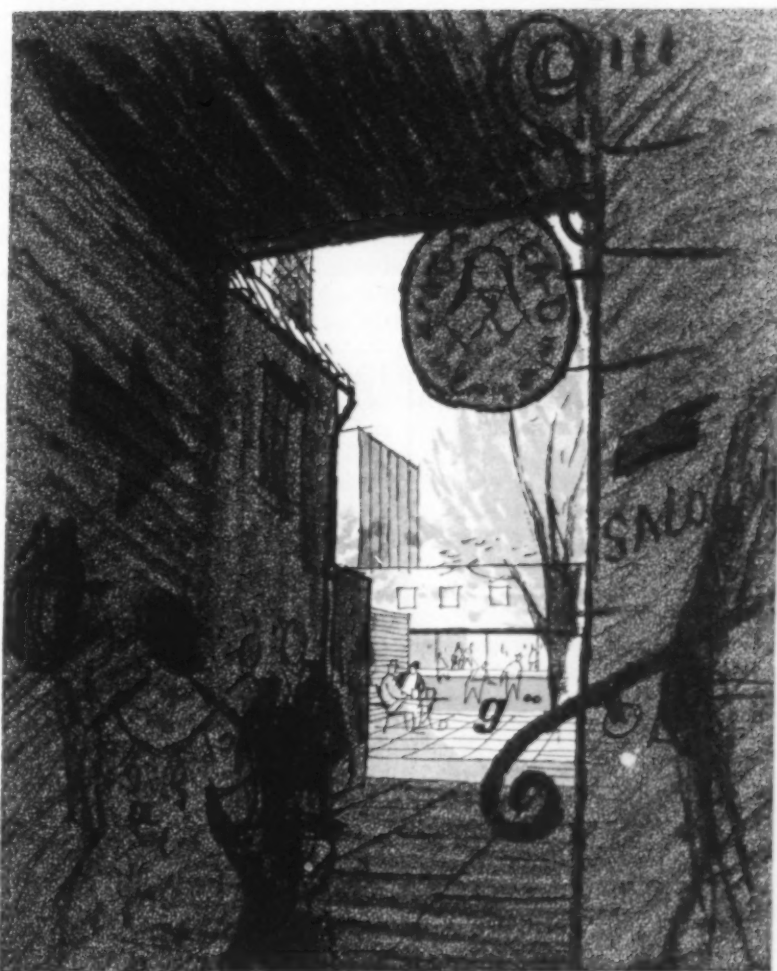
market gardens which exist now and are such a pleasant feature. Something of that green character should be retained between the street barrier and the new shopping centre.

3. Visually the emphasis is badly placed. Romford is an overgrown village as far as building height is concerned and it needs central high building and a feeling of concentration. The 'high' office block (in fact only seven storeys) should be much higher, say, 15 storeys and placed centrally to the scheme not on the perimeter as at present, where it is visually heavy at the entrance *f*.

4. Lack of variety. The whole scheme looks rather rigid and level topped and that combined with the long straight vistas will make for monotony. At present there will be too many views which are almost identical.

Plan 6 shows in sketch form an attempt to overcome some of these defects whilst retaining basically the same idea. It is an attempt to produce a more integrated solution and the sketches which follow show part of the variety of spatial experience which would be achieved.

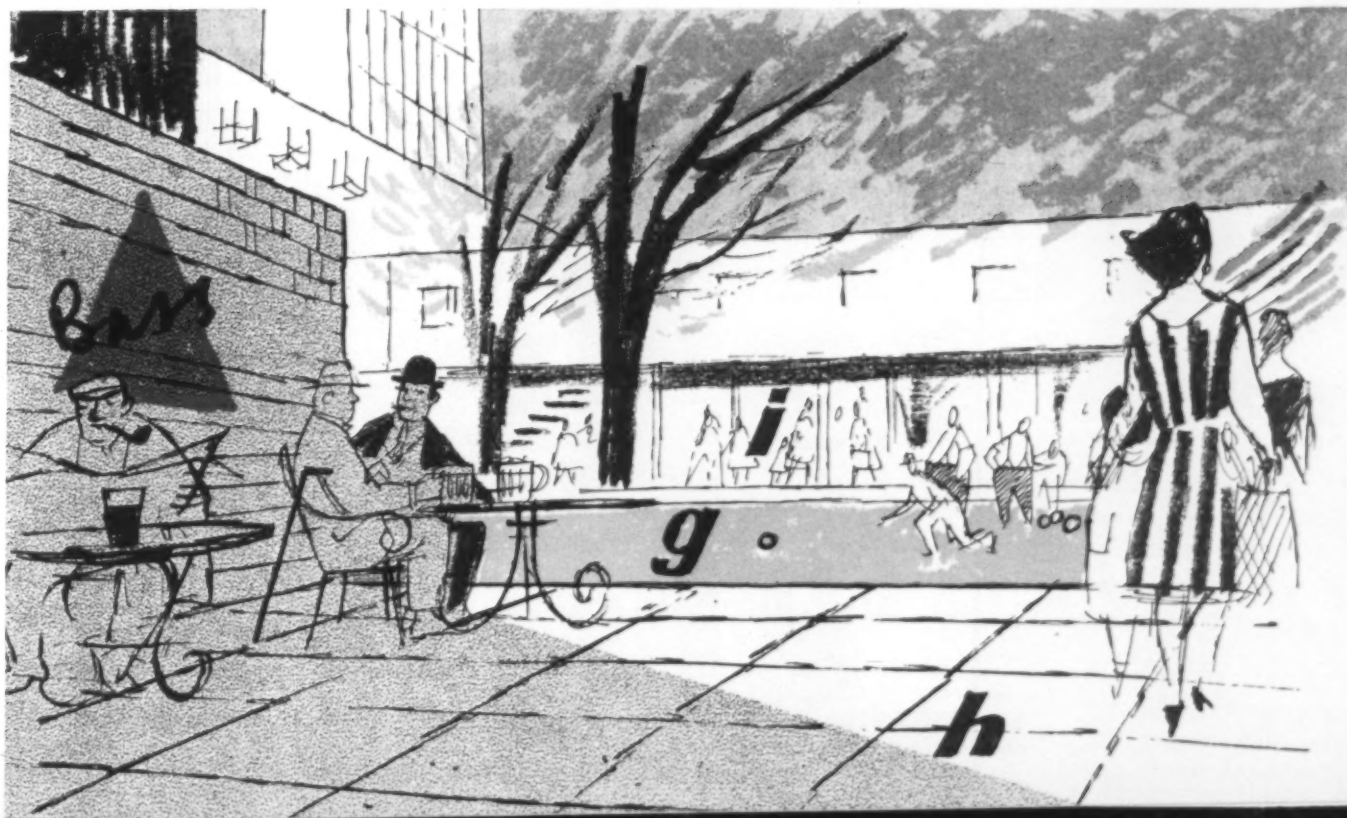
Approaching from the market place *a*, as many ways through as possible would be made to link it tightly with the new shopping centre. For instance, penetrating through the street facade by the tunnelled alleyway of The King's Head, *7*, you get a surprise glimpse of green—one of the existing bowling greens *g*, which I suggest must be retained. It is visually invaluable for it will act as a green glimpse—a thrill of surprise from a number of other built-up approaches and is more valuable than its size suggests. Moving further, the scene opens, *8*, with sky above. You can stop for a pint on the pub terrace *h*, or carry on along the side of the bowling green crossing by covered ways *i* to



7

The sketches which follow show some of the townscape qualities which would result from plan 6. By retaining the bowling green *g*, the shopper going from market to new centre would get this view 7 from the alley beside the 'King's Head.' Better than rows of parked cars. Past a pub terrace *h* he would follow round the side of the bowling green under trees and by a covered way *i* reach the new centre.

8



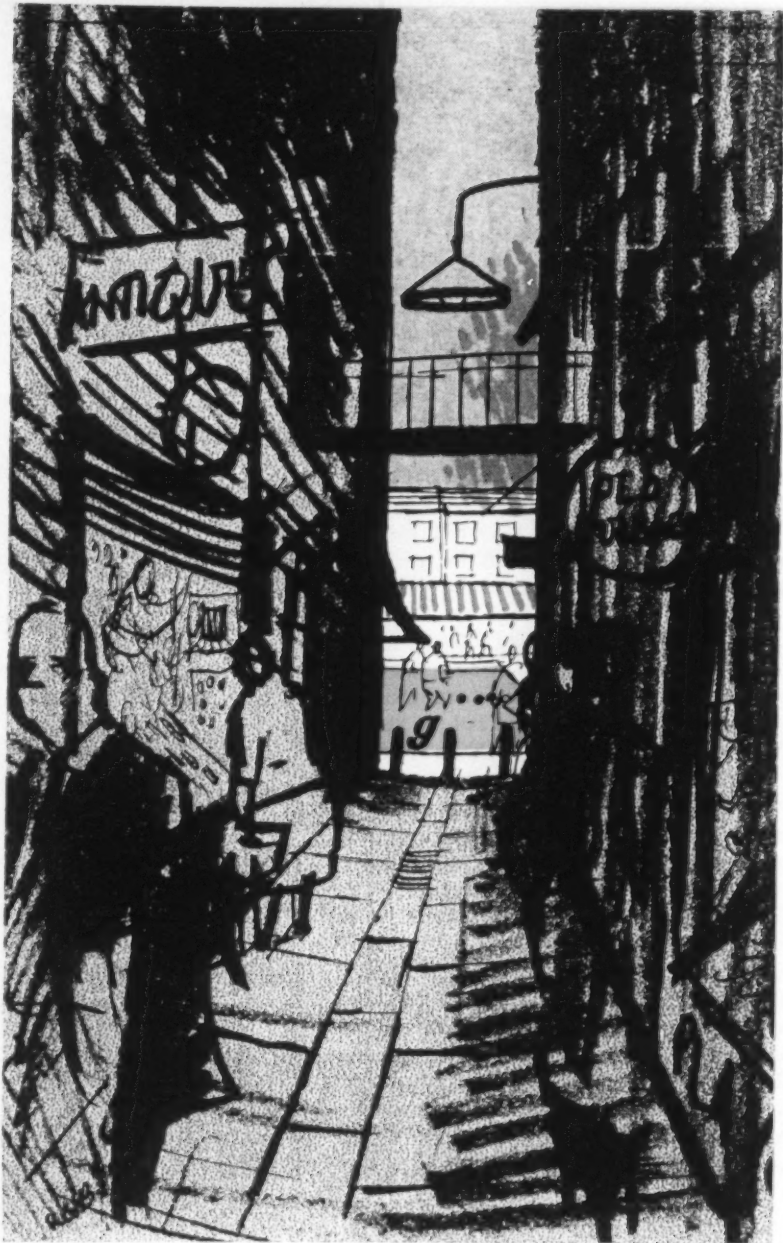
the shopping mall itself.

Elsewhere the same effect is achieved by orchard planting of car parks **P** (keeping as many of the present trees as possible), which no longer surround the centre, but still afford as much parking space. (It is presumed here that multi-storey car parks are ruled out on account of cost.)

To get contrast with the open green areas narrow pedestrian alleyways lined with small shops are needed giving slotted views, **9**, dark to light.

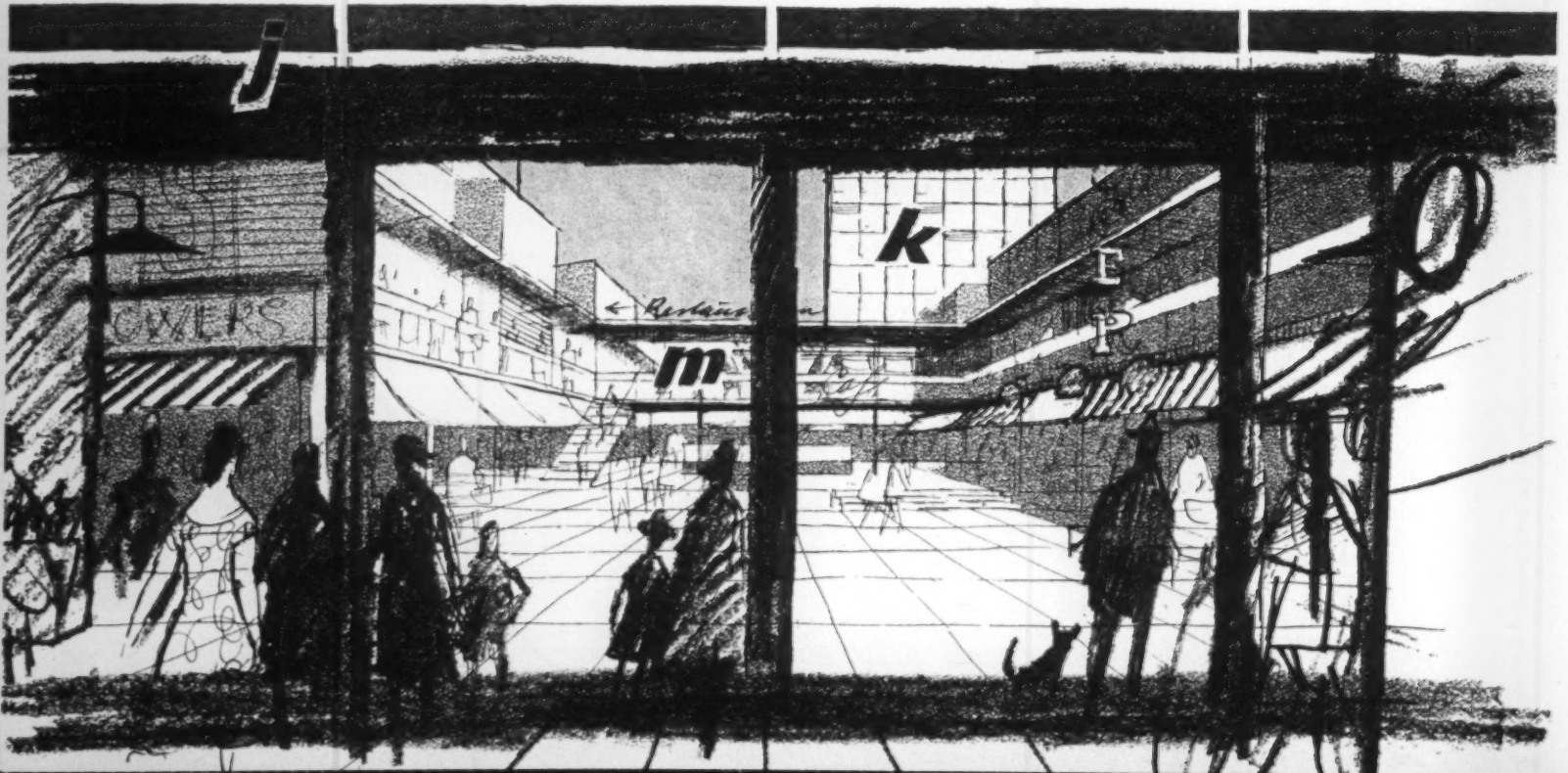
Approaching from the south, or station end, **10**, you enter the mall under a bridge building on columns, **j**, which visually draws you in. It's intriguing because you can't see all that is happening inside at one go. A tall office block, **k**, marks the turn of the dog-leg and its top is withheld. There is another bridge, **m**, and a strong interaction of shapes. Going further you are in the open pedestrian shopping street and the full scene is revealed, **11**. By introducing two level shopping you not only have greater convenience but added visual interest of movement on two different levels. There is an open-air cafe in the concourse, **n**, and the shop facade is staggered giving a broken skyline. The human scale here is emphasized by the superhuman scale of the towering office block in the background **k**.

A little further and a turn left shows an arcade penetrating through the block, **12**, a dark tunnel with trees of car park **P** beyond. **13** Again, from the relaxing area **o** we are intrigued by the interpenetration of spaces **13**—the pub on the left would be a fascinating place to sit and watch the crowd. The main shopping mall crosses at right angles, passing under the bridge restaurant, **p**, of the pub which can be entered from two levels. **q**, is the upper



9

10



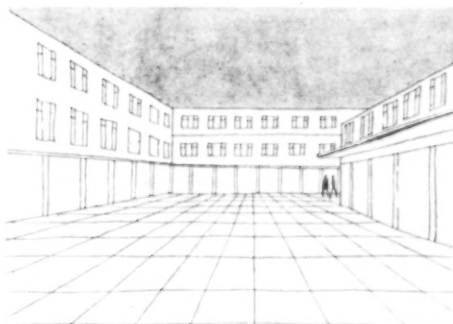


11

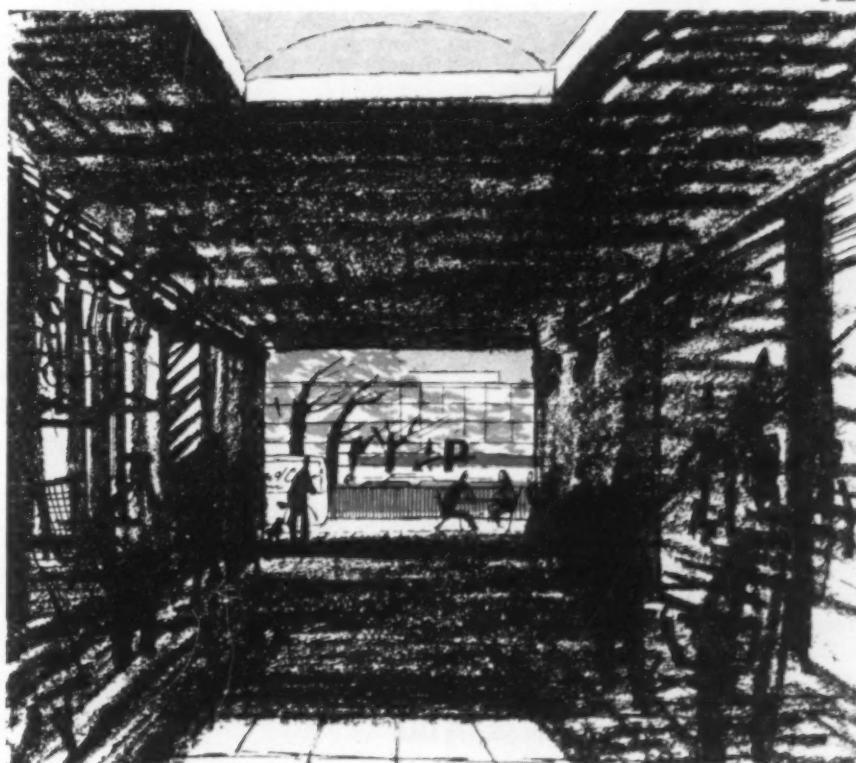
Another view **9** terminated by the same bowling green shows how it would justify its keep from various angles. Its small size doesn't matter. This time, approached down a narrow shop-lined passageway, the splash of green, suggesting an opening out to either side, makes a good foil to the dark slit of the passage itself.

By contrast, approaching the shopping centre from the station end **10** the entrance is restricted visually to a pillar-box slit by a building on columns **j**. A tall office block **k**, part masked, stops the eye at the end of the vista and marks the turn of the pedestrian mall.

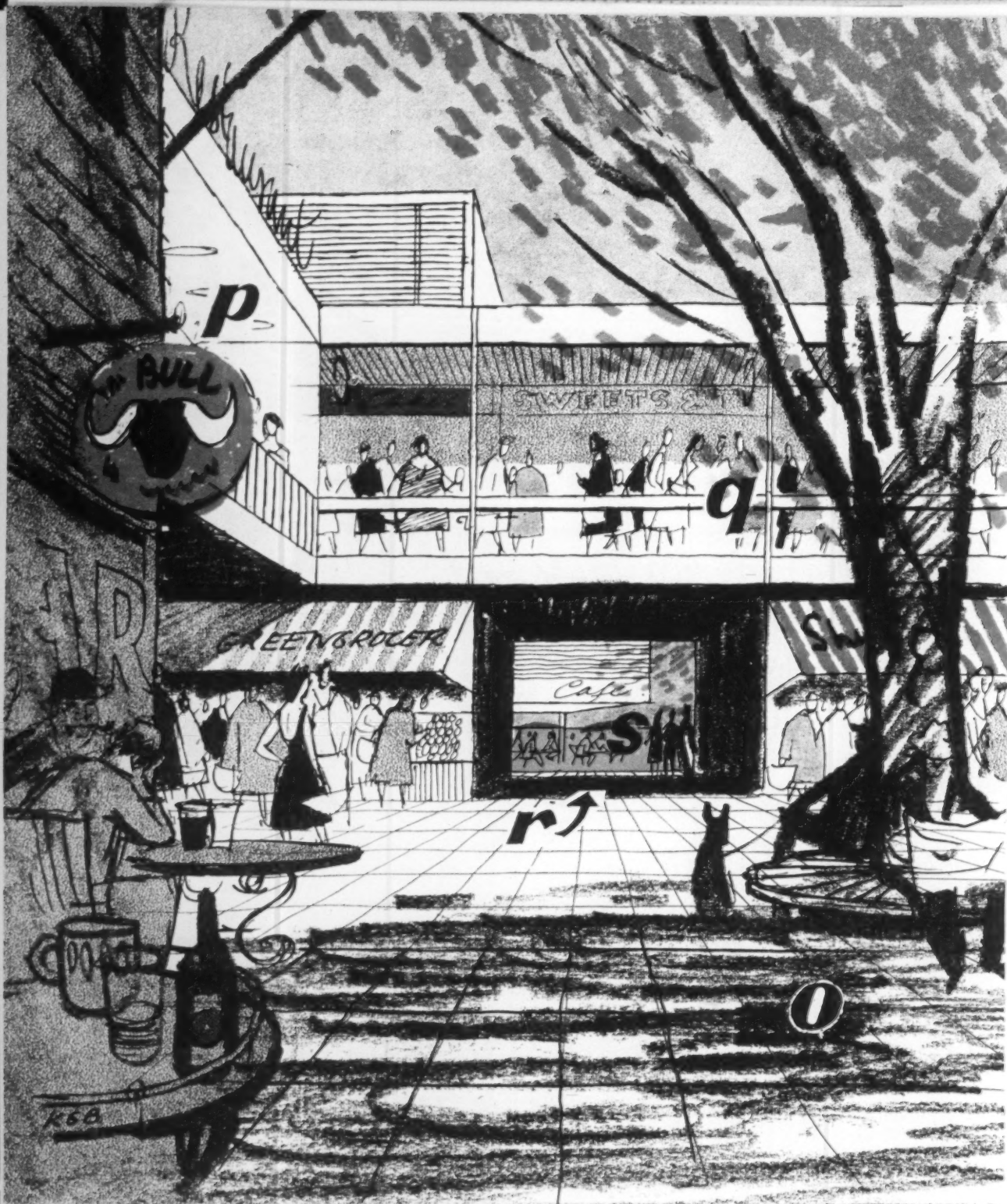
In the open mall **11** (above) long views are broken by bridges **m** which besides giving access to two-level shopping give a sense of enclosure suggesting the shopper should linger and explore, not rush on as this would do:—



Moving on, and looking left, an arcade **12** one of many, pierces the depth of the shop 'wall' showing a tree-covered car park **P** screened by hedges.



12



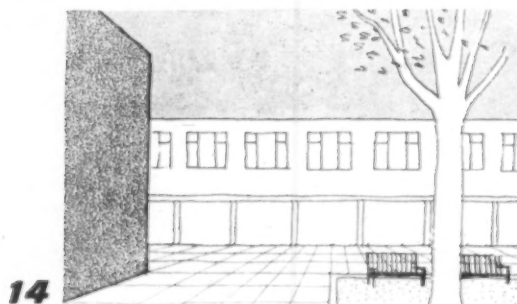
13

level shopping promenade, and below it the view penetrates the shopping facade by an arcade, *r*, carrying the eye through to an open-air cafe under trees, *s*.

Compare this scene with **14** which shows the dreary way in which the same area of plan **5** might so easily be built.

The lesson surely is that the architect must picture himself moving about in the spaces he creates otherwise they can never add up to anything worthwhile. You cannot plan in plan alone.

Space for relaxing could be like **13** (above), a pleasant place to quench your thirst, take a nap, or watch the crowd. The danger is it will either be whittled away to nothing as waste of space or killed by a genteel municipal approach **14** (below).



14



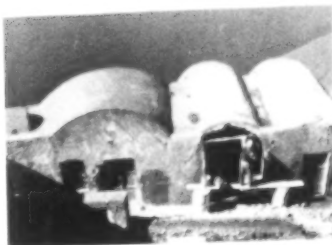
the exploring eye

Whoever constructs correctly, thereby builds Greek, said Alois Hirt a hundred and fifty years ago, intending doubtless, to hoist the reputation of the Parthenon a little higher in the eyes of his fellow Neo-Classacists. Many architects of our own time would agree with the form of words, but their view of Greek is not focussed on a single building, nor a single period, but ranges wide enough to include also the autochthonous building of the Greek islands.

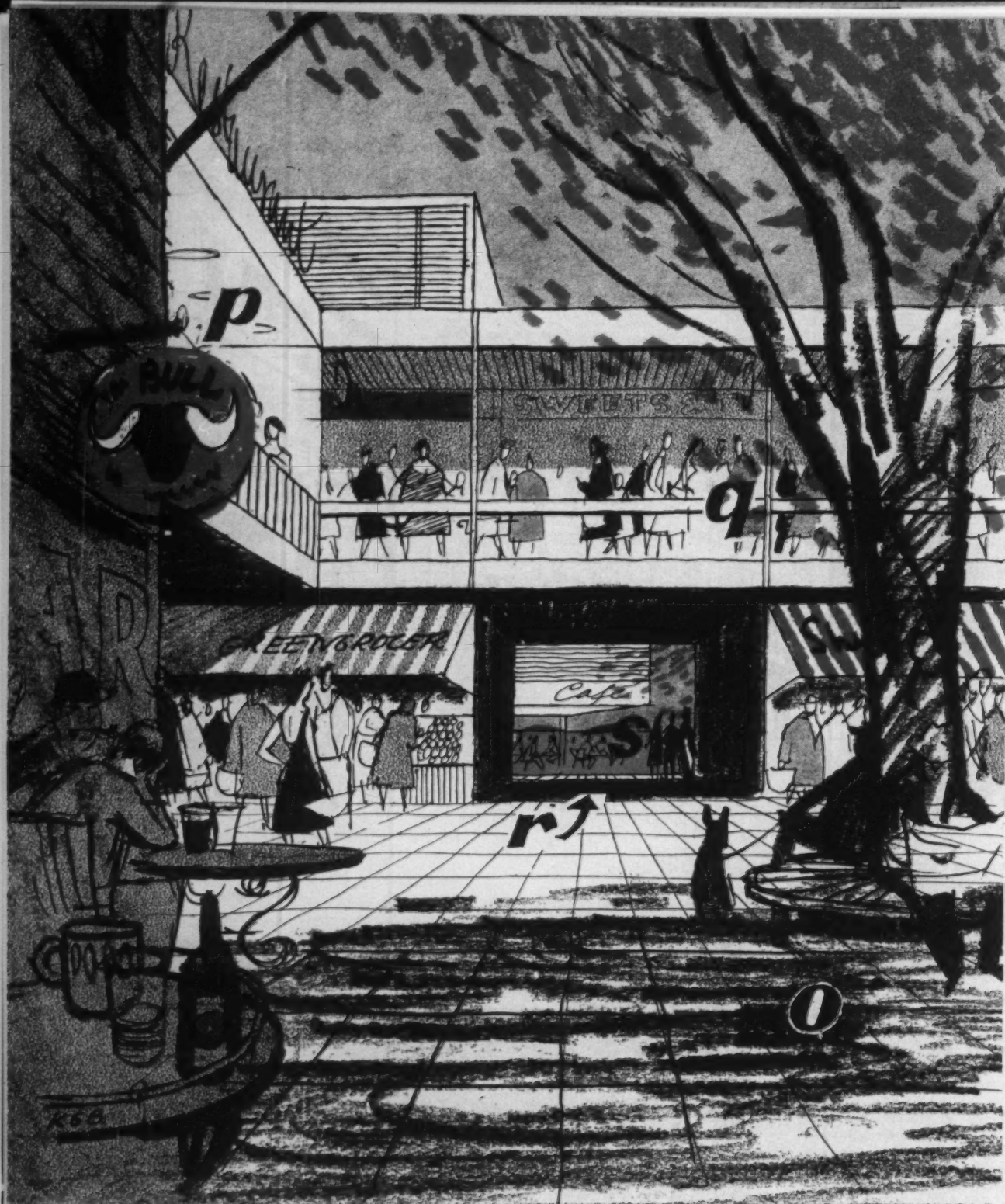
On these islands there has arisen a vernacular architecture whose sources are as complicated as the territory's history—modern Greek, back through Turkish, Venetian, Frankish, Byzantine, back even to Mycenæan but refined through simplicity of materials and simplicity of methods—mass walling, vault-work, domes and apses—until its exterior forms approximate to those regular geometrical shapes, such as the cylinder, the cube, the sphere, that Le Corbusier praised as 'beautiful . . . the most beautiful forms.' And it was forms such as these that Le Corbusier, who had visited the Greek islands, believed to make architecture when correctly assembled in the sunlight.

In search of inspiration from this architecture of primitive construction and primary forms, revealed in its correct geometry by a merciless sun, at least four generations of Western architects have visited the islands, to look on a dialect of forms whose simplicity they will rarely be allowed to emulate in their complex technological cultures, but will retain in their minds as a standard. And to help their minds retain it, they will like Le Corbusier—record it in their notebooks, or like more recent generations of students on colour film.

Every such record is to be encouraged, for these islands lie in what has recently proven to be one of the most cruel earthquake-belts in the world, and on some of them, such as Santorin, in the Cyclades, which forms the subject of most of the photographs inside this fold-out, as many as half the houses have been destroyed in recent years. They may well be rebuilt much as they were, for the centuries-old skill and rules of thumb by which they were built still survive among the islanders. But how much longer will they survive in a culture which is rapidly being brought within the orbit of more sophisticated technologies—not only by the operations of commerce and the architectural tourists, but even by the technical aids that have been rushed there to help with earthquake relief. The correctly-constructed vernacular of the islands may survive the last wave of earthquakes, but it may not survive another.



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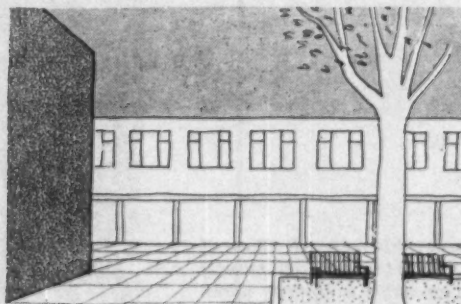
13

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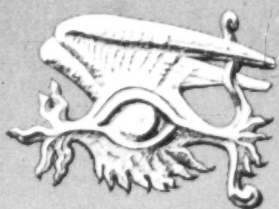
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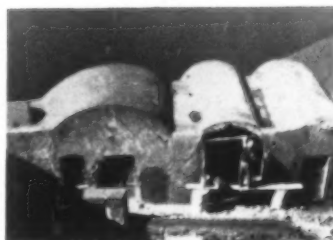
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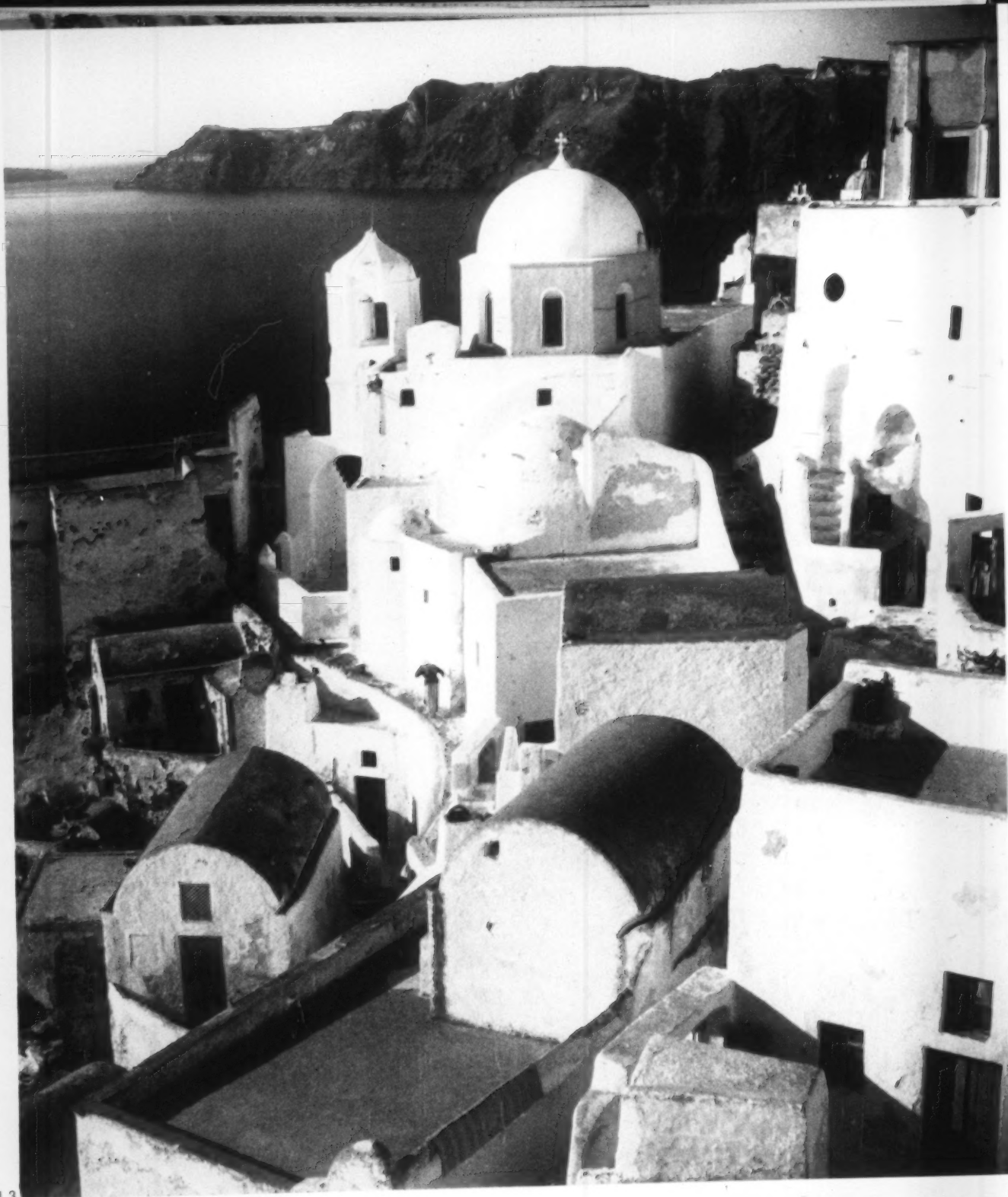
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The traditional craft methods by which the houses of Santorin were constructed still survive and, even without earthquakes, have been kept busy with normal construction and repairs. But—as in this scene of work in progress—newer technologies are intruding, and the local craftsman stands on a will-sawn plank laid across a couple of oil-drums.

correctly constructed



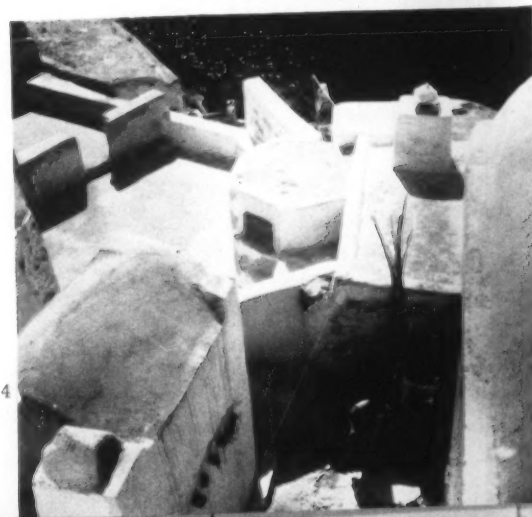
13

1, the towns of Santorin, like Phira its capital, are mostly piled on precipitous and broken sites at the edge of the sea. Their planning, while rich in three-dimensional qualities, can never achieve the geometrical order possible on a more regular site.



2

Their order is rather that envisaged by Laugier - a chaos, a tumult in the whole, a regularity and a decency in the parts. 2, the code of decency, the rules of regularity in the parts seem to have been set by the churches, in this case St. George at Merovigli, which establishes on basically rectangular plans a repertoire of spheres and parts of spheres, cylinders and parts of cylinders, unadorned by string courses or any other surface details, so that a stranger has difficulty in judging the scale, and a baroque belfry (added at a later date) though



4

level
view
arcade
air cal
Com
dreary
might
The
picture
creates
anything
alone.



simple enough in all conscience, looks like a frivolous intrusion. **3** and **4**, in small things as well, both in elevation and plan, the decency and regularity of the standard geometrical elements is maintained: a half-cylinder of vault covering a pure rectangle of

room with a rectangular window set high in its wall, a half round-projection buttressing its corner, a rectangular opening cut in the exact centre of a wall separating two roof terraces whose plan form, though irregular, is not imprecise. **5**, even where the nature of the terrain, or the precise juncture of land and water force the inhabitants to take to the caves, the work that they insert there distinguishes itself sharply from its surroundings by emphasizing the difference between the built and the excavated (in contrast to the caves of Cappadocia illustrated on

these pages in the October AR).

6, but, the geometries of the Greek island vernacular are the work of a sea-going people, who do not necessarily think only of closed and solid volumes, but also of the elementary space-frames of the rigging of their ships. On their high places, to make the best use of the wind, they combine solid masonry forms with the open tracery of rigging and sails in the windmills that are both the symbol and the masterpiece of the island technology which—like the windmills—is now falling into disuse.



5



6



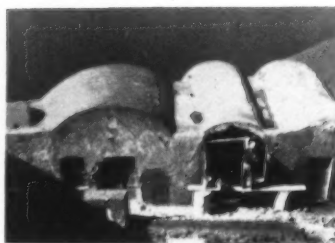
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ID

a monthly review of interior design

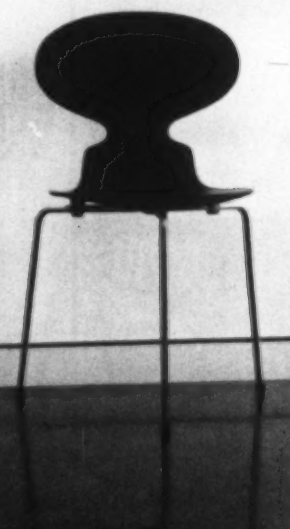


corridor.
ceiling over
pa. area.



ID

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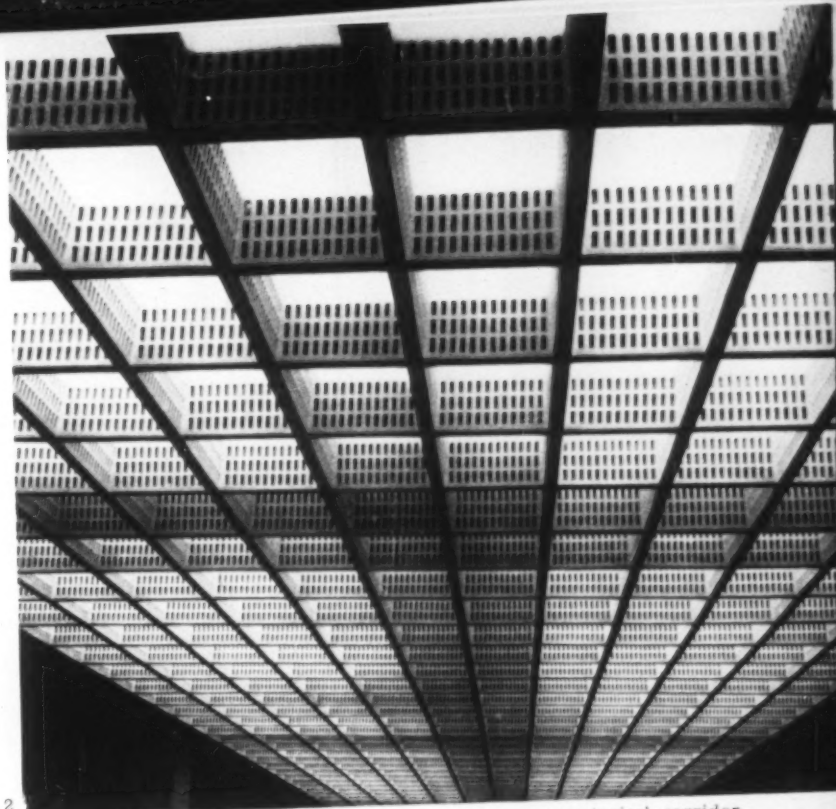
1

The area is approximately 8,700 square feet and consists of two main sections divided centrally by an entrance, lifts, and a reception area. The extensive use of open planning in this scheme is of particular interest.

1, the secretaries, who are separated from the executive offices by glazed screens, work in an open corridor. The market area serves two purposes. First, as a changing exhibition of goods sold by W. H. Smith's, and secondly, as a meeting place for executives and buyers. A timber screen at the end of this area divides the offices from the staff shop. This has an observation window at eye level.

2, before conversion the building was used as a warehouse and the old maple strip flooring was retained in the market area. The original heavily-beamed floors made a suspended ceiling necessary to allow an over-all lighting system, and provide for additional sound absorption.

2



1, secretaries' corridor.
2, suspended ceiling over the market area.
3, the market area.

Offices for W. H. Smith

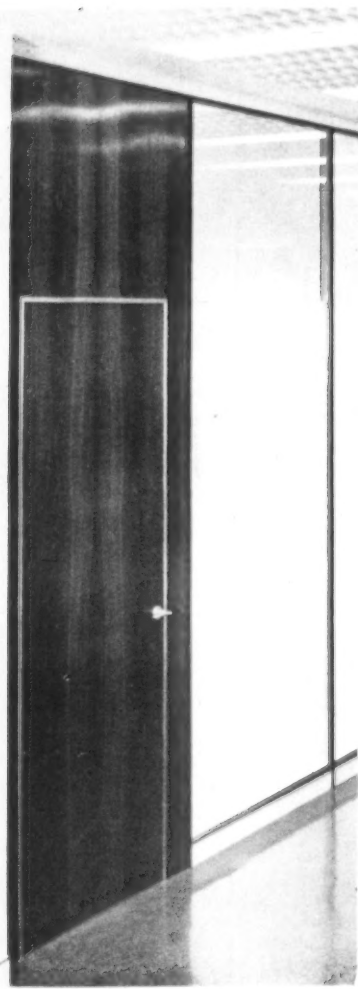
designers: T H M Partners

3





4



5

The ceiling lighting pattern is directly related to the office circulation. In the market area fluorescent tubes are concealed in opal plastic dishes in the deeply coffered fibrous plaster. Elsewhere the ceiling is of perforated plaster panels with continuous lines of similar dishes. The reception area has a plain ceiling with specially designed tungsten fittings partly recessed into it.

3, the main section consists of a

large open market area flanked on one side by seven executive offices and on the other by an open office space for the executive's assistants. 4, the carpet in the reception area is steel blue and the chairs are upholstered in orange, brown and ochre woollen materials. The desk is 'L'-shaped to give a view of the entrance door and main office areas. It is made of solid teak with cupboard doors faced in white plastic

laminate. The heating panels are veneered with polished copper sheets and the working top is black. A laminated glass screen patterned in greens, greys and yellow separates the receptionist from the typists' area behind.

5, in the market area the walls and ceiling are white and the central area of floor is the old maple strip sanded and polished. On either side the floor covering is olive green rubber. The doors to the executive offices are rosewood, the same veneer running over the opening and the fixed parts. These doors, the glazed screens and all skirtings have brass trim. The Jacobsen chairs are black, and the secretaries have chairs upholstered in yellow.

6, the heating system retains the existing radiators on the perimeter walls in the typists' and assistant executives' areas. There is additional heating in the form of radiant electric panels; some attached to the backs of the desks are faced with white plastic laminate.



6



Offices for J. Sainsbury

architects : Ward and Austin

7

This suite of offices occupies a small bay on the fourth floor of Stamford House, Blackfriars.

The ceilings throughout are of rilled board, and the general lighting comes from groups of white opal pendant fittings.

The Chairman's room is panelled in Cuban mahogany, both solid and veneers. For this a thirty-year-old stock of saw cut veneer was used. 7, the desk was designed by the architects and is Cuban mahogany with brass marquetry. The desk chair is of black leather, and the confer-

ence room has chairs of ebonized wood, covered in red moquette. There is a dark moss green carpet and the curtains are pale yellow Chinese silk.

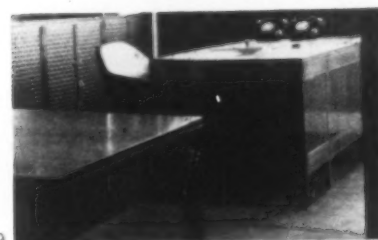
8, the panelling and furniture in Mr. J. D. Sainsbury's room are of Rio rosewood. The bookcase shelves and backs, and the wall opposite the window are covered in white vynide.

9, the radiator grilles are satin brass and the cupboard doors and panels concealing ventilators are covered in black leather with the same brass grille superimposed.

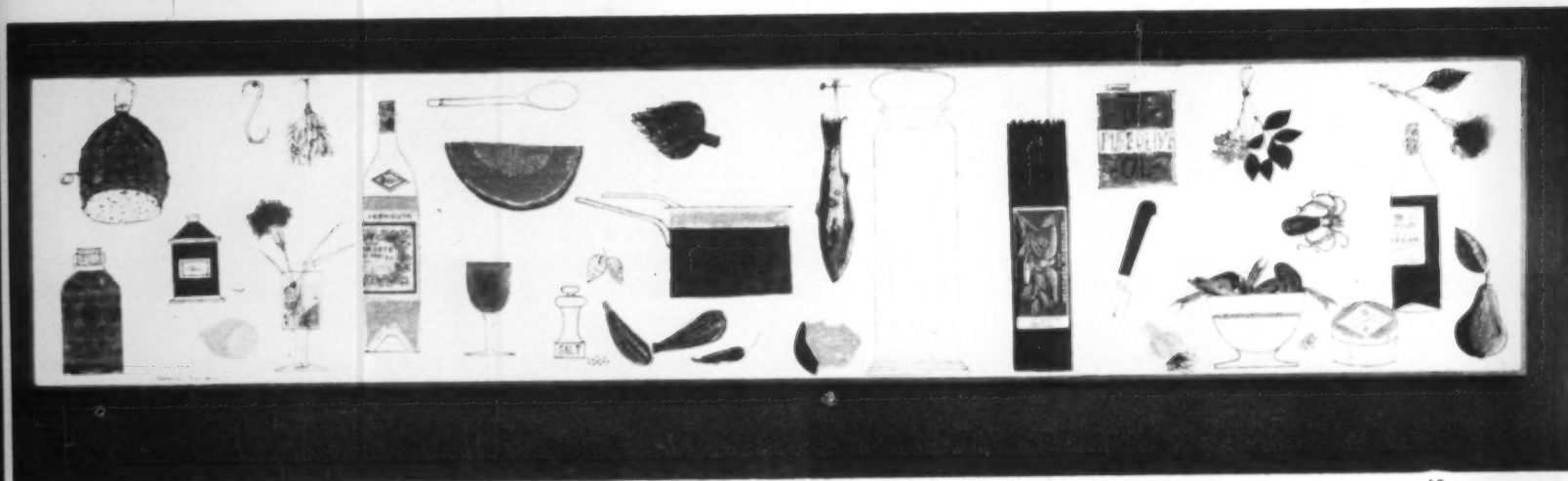
7, detail of chairman's desk.
8, white bookshelves and yellow Chinese silk curtains.
9, brass grilles cover radiators and cupboard doors.



8



9



13

Kitchen in Cheshire

designers : Conran Design Group

The Conran Design Group have designed this kitchen in a Georgian house in Cheshire for a Manchester industrialist. The kitchen is 22 ft. 6 in. by 12 ft. and caters for laundry work and occasional eating as well as the normal kitchen activities. The only existing equipment re-used was the cooking stove and washing machine. Everything else was new or specially designed for the job. The kitchen is centrally heated and has built-in radio loudspeakers.

On one long wall units with solid teak or terrazzo slab tops butt up on either side of the cooking stove. The wall behind the stove is faced in blue and green glass mosaic, and the working surface is lit by fluorescent tubes hung on the base of the upper storage cupboards and shielded by a black plastic laminate fascia. Beside the cooker there is a service hatch to the dining-room.

10, 11, the opposite wall has a white plastic laminate working top, similarly lit, over twin-handed refrigerators. Next to it there is a separate laundry area, 12. Above the washing machine and laundry storage cupboard there is a deep fascia screening tubular heaters which serve clothes airers on pulleys.

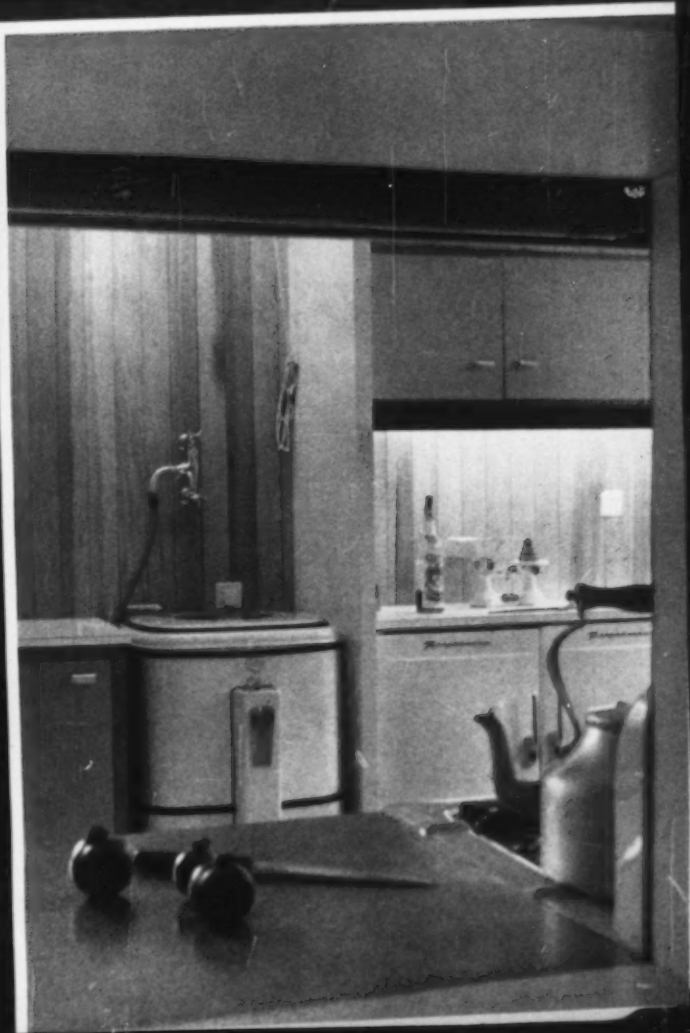
The sink unit is on the short wall beneath the main window. A double stainless steel sink is set into oiled teak drainers, and the cupboards below are fitted with vegetable trays made of $\frac{1}{2}$ in. timber dowelling.

14, the dining area is at the opposite end between the entrance door and a window overlooking the garden. Over this section of the room there is a false ceiling of 2 in. slatted pirana pine which houses an extractor fan and recessed lighting, and also conceals the curtain track. The

table has a teak top and the chairs and bench are upholstered with blueberry coloured facecloth. The curtains are linen printed in blue and green. 13, a mural by Terence Conran using bottle labels hangs on a dark olive green wall behind the table. The other wall surfaces are 5 in. 'v'-jointed pirana pine and white eggshell gloss paint. The entrance door is dark blue, and the doors of the upper cabinets are cellulosed yellow, dark green, white and blueberry. The floor is grey thermoplastic tiles.



14



DR

design review

The Fornasetti exhibition

(Tea Centre) was an Ali Baba's cave filled with the fantastic, the grotesque and the truly beautiful. Mr. Fornasetti's invention seems unlimited. He works equally happily in metal, ceramic, plastic and timber; sometimes painted, sometimes screen-printed or covered with reproductions of lithographs or photographs. His work is a combination of trompe l'oeil and surrealism with jokes reserved mostly for the more ephemeral knick-knacks; in **1**, umbrellas sprout unexpectedly from behind a group of solemn antique heads.

In some of the most lasting pieces of furniture the simple outlines are in sympathy with the classical formality of the superimposed decoration, as in the commode **2**.

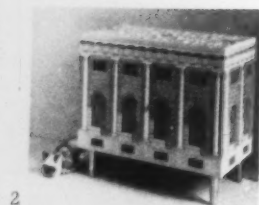
Working in a less rigid but equally appealing vein, Fornasetti achieves a tour de force in the bizarre with **3**, his leopard chest of drawers decorated with an all-over design quite as serene as a Morris wallpaper.

It is his superb sense of colour, pattern and scale rather than his cleverness which raises Fornasetti's work to a different plane from the usual photo mural in a coffee bar.

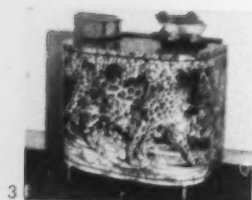


1

1



2



3



4

Northern Artists and Craftsmen

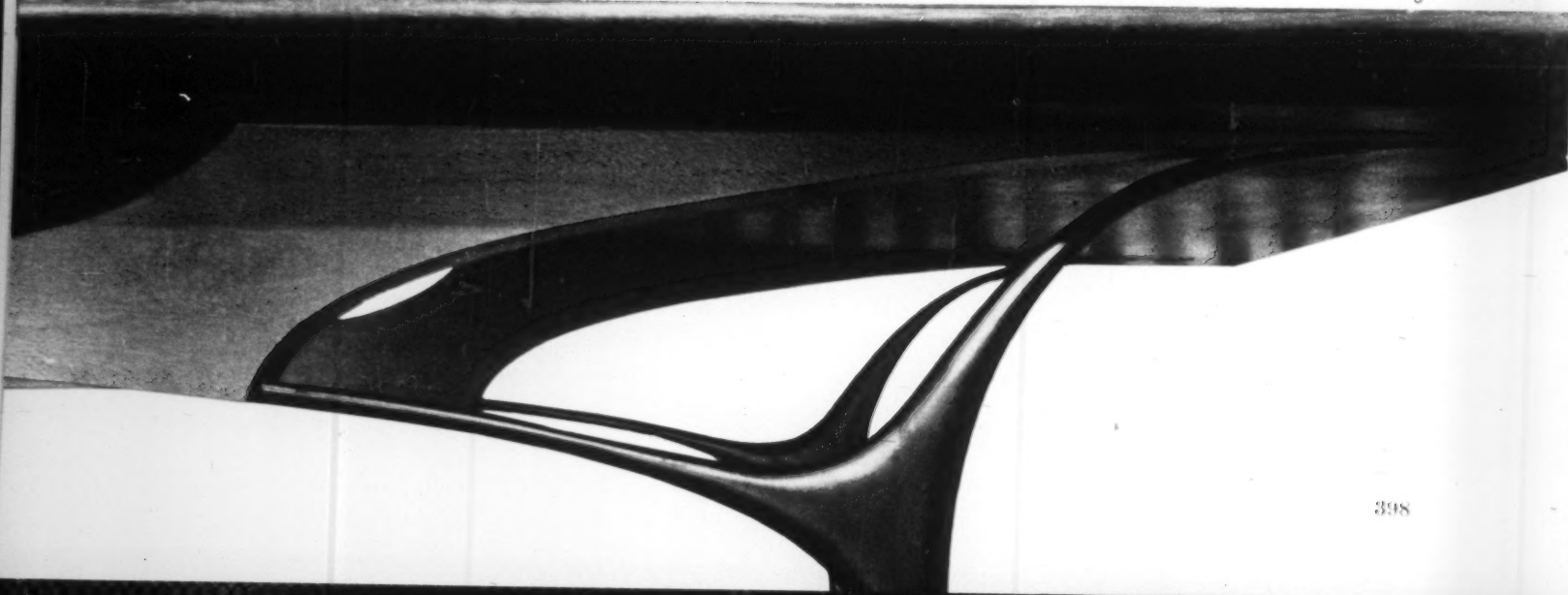
Woollands held another of their small immaculate exhibitions in September, this time called Northern Artists and Craftsmen. All the exhibits were the work of young architects and artists from Leeds and they included sculpture, painting and furniture.

The furniture was designed by Derek Walker in collaboration with Duncan Biggin and was made by local firms. The cabinetmaking of the prototypes was memorable and if

this standard could be maintained in production it would be a ray of hope from the North for a return to high standards of craftsmanship in modern furniture.

4, the dining table has a severely plain top of 2 in. strips of dark striped Macassar ebony with a finely tapered edge **5**, the sculptural legs are black cast alloy and the side rails are ebonized timber. The table is 7 ft. long and 2 ft. 9 in. wide. The cost of the prototype was £92.

5





1, the five-storey block at the western end of the square, with some of the original Georgian houses on the left.

FLATS AT REGENT SQUARE, W.C.1.

ARCHITECTS: DAVIES AND ARNOLD

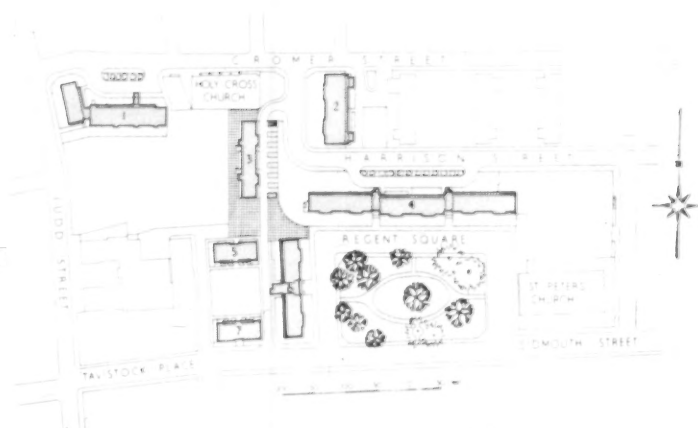
These flats, completed in March this year, occupy a $3\frac{1}{2}$ -acre site, bounded by Cromer Street to the north, Judd Street to the west and Tavistock Place and Regent Square to the south, where formerly there were four-storey Regency terrace houses, like those which remain on the south side of the square. The development consists of four-, five-, six- and seven-storey blocks of flats, and one twelve-storey point block, with accommodation for a total of 596 people, or 175.4 per acre. Care has been taken with

the two blocks facing the square to complement the Regency character of the adjoining buildings; the eaves line is continued and bricks and paints have been chosen which are sympathetic in character. The plane trees in the square's garden have been preserved and it is hoped to restore the bombed St. Peter's Church, to complete the eastern end of the square. With the exception of the two low blocks, which have been executed in load bearing brickwork, the construction throughout is of reinforced



2, main entrance to Block A, and the bow fronted private balconies.

Flats at Regent Square



- key
- 1. block D. 7 storeys
 - 2. block E. 5 storeys
 - 3. block G. 6 storeys
 - 4. block F. 12 storeys
 - 5. block A. 5 storeys
 - 6. block C. 4 storeys
 - 7. block B. 5 storeys
 - 8. block C. 4 storeys

concrete with brick cladding. Flank walls and walls to staircases, all in reinforced concrete, form the windbracing to the point block. The staircases and flower boxes to this block were precast and placed in position by tower crane. External walls are golden or light brown facing bricks, with an inner skin of clinker blocks. The lower blocks have pitched roofs with slate covering, the high blocks have flat roofs. Space heating and water heating are provided by open fires with back boilers, except in the point block, which is heated by gas fires and gas water heaters. Walls to balconies are rendered and painted, and the balustrading to the balconies is of steel framing with glazed infill panels. Throughout the scheme the architects have worked in association with A. W. Davey, Housing Manager to St. Pancras Borough Council.



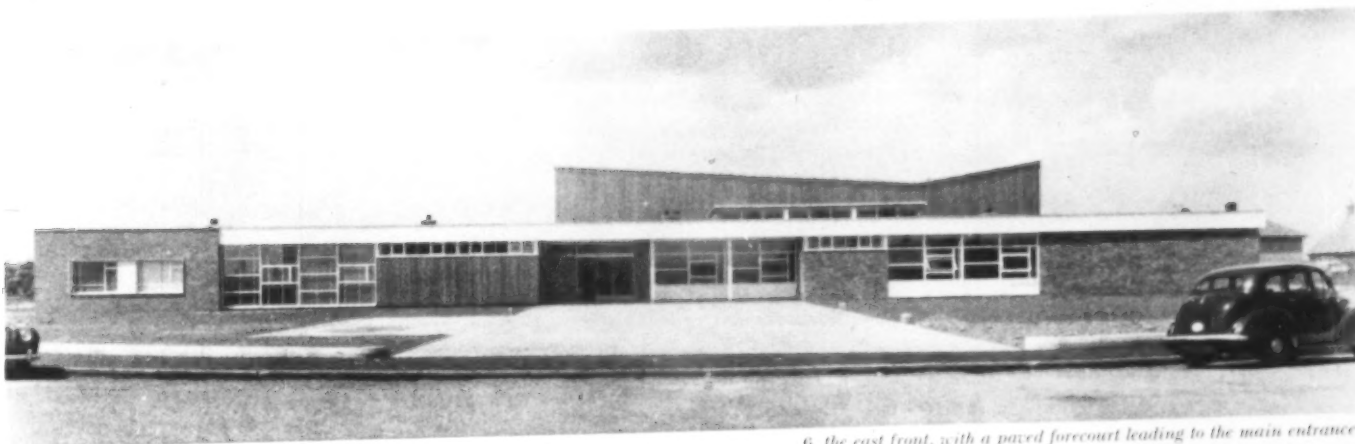
3, looking north-west from the square to the twelve storey block.



4, entrance to the tall block, set back beneath the main facade.

5, general view from the gardens, looking north-west.





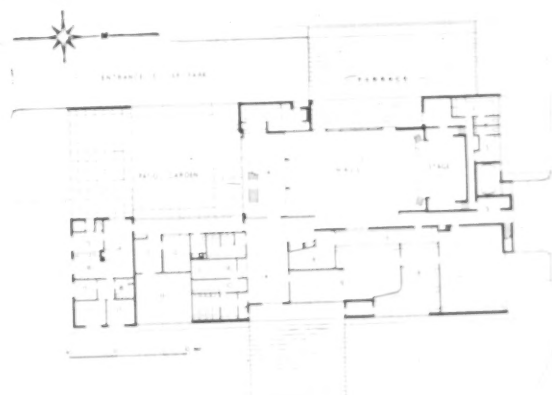
6, the east front, with a paved forecourt leading to the main entrance.

MINERS' WELFARE CENTRE AT BILSTHORPE

ARCHITECT: MICHAEL MOSS

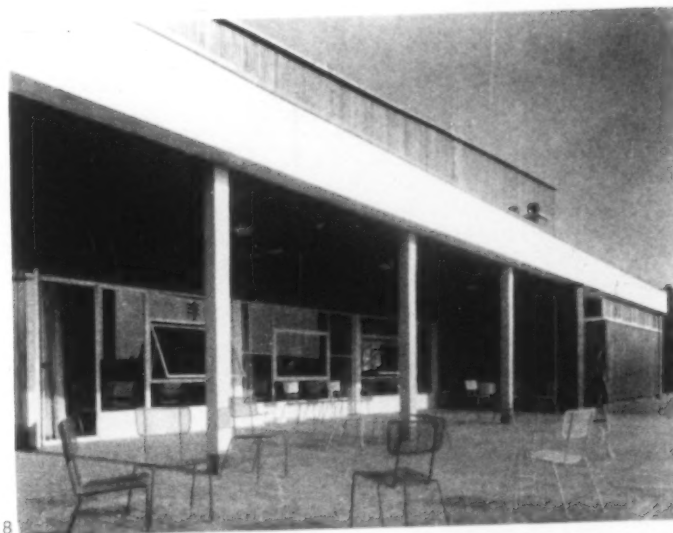
The village is one of the most isolated colliery communities and the main requirement was for a new building to take the place of a working men's club and village hall. It is situated on an island site surrounded by houses and shops.

The building is steel framed on a mass concrete and reinforced concrete strip foundation; internal partition walls are non-load bearing, the main welded trusses spanning 42 ft. at 12 ft. centres. Insulation board covers



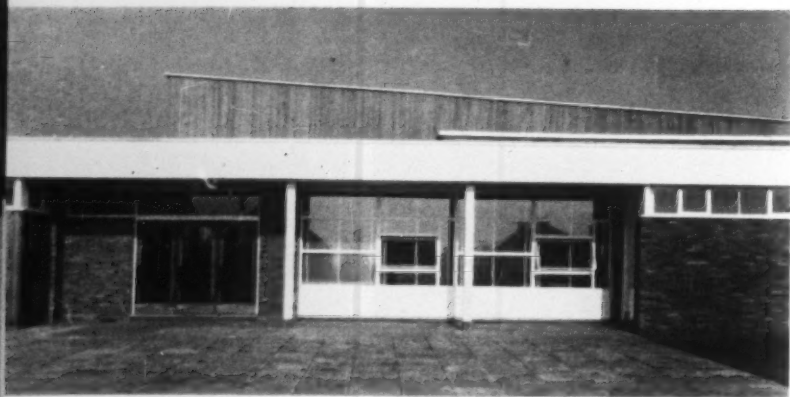
key

- | | | |
|-------------------------|--------------------------|------------------|
| 1. lavatories | 7. billiard room | 13. waiting room |
| 2. female dressing room | 8. small bar | 14. living room |
| 3. male dressing room | 9. main bar | 15. kitchen |
| 4. foyer | 10. cloakroom | 16. dining room |
| 5. service entrance | 11. main committee room | 17. bedroom |
| 6. bar service | 12. small committee room | 18. bathroom |



7, the main bar.
8, a covered terrace opens off the west side of the hall. 9, the foyer and staircase seen from the main entrance, with the kitchen and snack bar beyond.

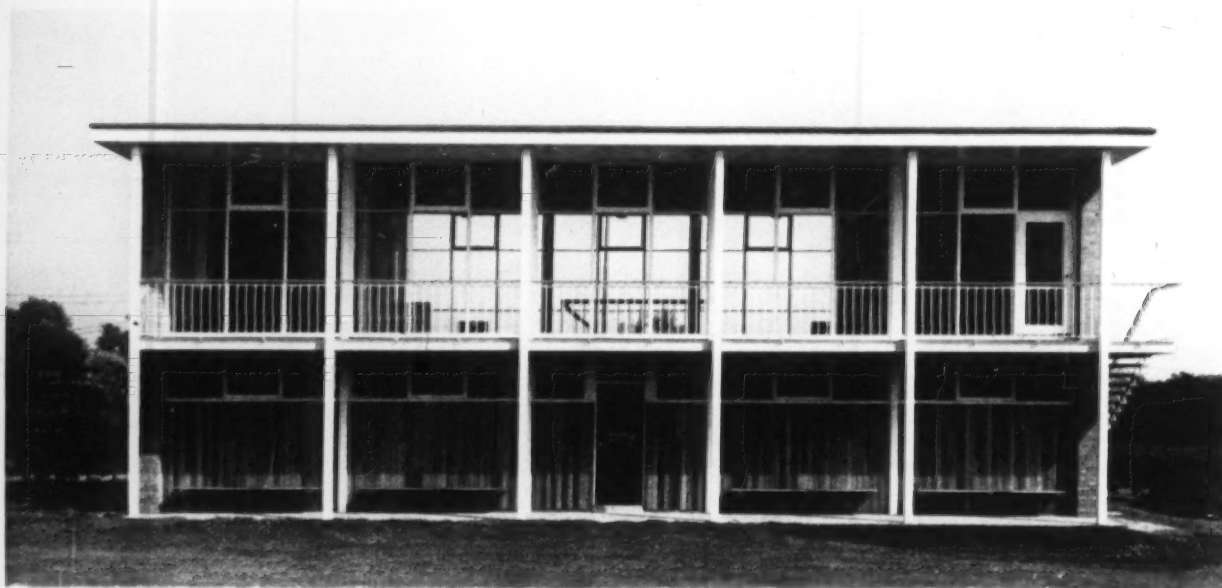




11, detail of the main entrance.

Miners' Welfare Centre

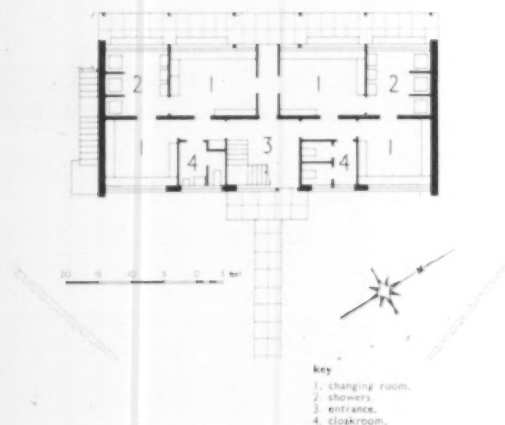
the steel deck roofing over the main hall, and wood-wood slabs with a built-up felt finish on the lower areas. The upper walls to the hall are clad externally with cedar boarding; the main walls are 11 in. cavity brickwork with insulation blocks to the inner skin. Heating is provided by warm air from units throughout the building which can be operated independently as required; all ceilings are suspended to allow for the returned air ducting and services.



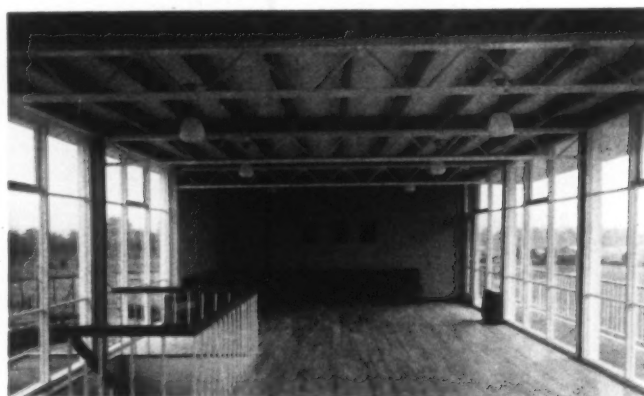
12, north-west elevation. The first floor club room has a long balcony, the changing room walls are faced with cedar strips.

SPORTS PAVILION AT DONCASTER

ARCHITECTS: T. C. JOHNSON AND SON



This building at Springwell Lane was designed to take the place of two existing pavilions and is situated at one corner of the sports field. Construction is steel frame with load bearing gable and spine walls in brick. Timber joists are used for the first floor and carry the roof, which is of compressed straw slabs, covered with felt. Externally



13, the interior of the club room.

the building is faced with hand-made sandstock facing bricks, rendering, and western red cedar boarding; wood windows are used throughout. Internally walls are plastered or tiled, with hard wearing finishes to ground floor and maple strip to the club room. Heating and hot water are provided by electricity.

SEVENTY YEARS BACK

Justly celebrated as the author of the Honeywood File, H. B. Creswell was born in the same year as Frank Lloyd Wright, and in the year of the latter's Larkin Building (1903) he completed a factory at Queensferry, in Flintshire that ought to have given Britain an almost equal position in the Modern Movement. The fault that it did not is not his, but the reasons may well be sought in that lost decade of British architecture, the Eighteen-Nineties, which Mr. Creswell recalls in the article below.

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The things in the London of 1890 that it best entertains the peeper to recall are those that arrestingly contrast with today. Seventy years is quite a time! When this peeper first opened eyes on the scene, Wren's Temple Bar had but twelve years before been salvaged to Theobald's Park, and the Newgate Prison of George Dance (Jnr.)—where, in the street, the peeper's father might have seen public hangings with the victim's feet dangling a foot above the scaffold floor, while the Chaplain read the burial service to him—still stood for the students of architecture, and their seniors alike to admire very greatly.

The Law Courts of George Edmund Street—then dead nine years, from official badgerings and bankruptcy of contractors, as was said, its echoing vaulted hall still evoking quarry-sap—was raising noisy complaints from judge and counsel for its remoteness from the Courts, and for consequent shuffling crowds in the corridors giving access to them—a lesson well learned by Webb in his competitive planning of the Birmingham Law Courts then building. The Strand of those days, mutilated by Street and freshly uglified by someone's 'special line' in cast-iron dragons, and snaking its

delightful course, continuous in width and kinship with Fleet Street, to Ludgate, is the best worthy of peeps since it was the throbbing heart, of the people's essential London. Hedged by a maze of contiguous alleys and courts, the Strand was fronted by numbers of little restaurants whose windows vaunted exquisite feeding; taverns, dives, oyster and wine bars, ham and beef shops; and small shops marketing a lively variety of curious or work-a-day things all standing in rank, shoulder to shoulder, to fill the spaces between its many theatres; with potato ovens, and roast chestnut standings at the kerb-side, and the cat's-meat man and his gruesome haunch of omnibus horse trafficking early. But the mud! And the noise! And the smell! All these blemishes were 'ze mark of ze 'orse'—*ecce signum 'Podsnapery'.*

The whole of London's crowded wheeled traffic—which in parts of the City was at times dense beyond movement—was dependent on the horse: lorry, wagon, bus, hansom and 'growler,' and coaches and carriages and private vehicles of all kinds, were appendage to horses. Meredith refers to the 'anticipatory stench of its cab-stands' on railway approach to London: but the characteristic aroma—for the nose recognized London with gay excitement—was of stables, which were commonly of three or four storeys with inclined ways zigzagging up the faces of them, and whose middens kept the cast-iron filigree gas chandeliers that glorified the reception rooms of upper and lower middle class homes throughout London, encrusted with dead flies and, in late summer, veiled with jiving clouds of them.

A more assertive 'mark of ze 'orse' was the mud that, despite the activities of a numerous corps of red-jacketed boys who dodged among wheels and hooves with pan and brush in service to iron bins at the pavement-edge, either flooded the street with churnings of 'pea soup' that at times collected in pools overbrimming the kerbs, and at others covered the road-surface as with axle grease or bran-laden dust to the distraction of the wayfarer. In the first case, the swift-moving hansom or gig would fling sheets of such soup—where not intercepted by trousers or skirts—completely across the pavement, so that the frontages of the Strand throughout its length had an eighteen-inch plinth of mud-purge thus imposed upon it. The pea-soup condition was met by wheeled 'mud-

carts' each attended by two ladders clothed as for Icelandic seas in thigh boots, oilskins collared to the chin, and sou'westers sealing the back of the neck. Splash Ho! The foot passenger now gets the mud in his eye! The axle-grease condition was met by horse-mechanized brushes, and travellers in the small hours found fire-hoses washing away residues. Hence arose London's shoe-blacks, registered and red-coat'd, at the kerbside doing a mighty job with blacking and spittle for 2d.; and hence also London's crossing-sweeper of the fashionable quarters.

And after the mud the noise, which, again endowed by the horse, surged like a mighty heart-beat in the central districts of London's life. It was a thing beyond all imaginings. The streets of work-a-day London were uniformly paved in 'granite' sets—i.e. trap; and the hammering of a multitude of iron-shod hairy heels upon it, the deafening, side-drum tattoo of tyred wheels jarring from the apex of one set to the next like sticks dragging along a fence; the creaking and groaning and chirping and rattling of vehicles, light and heavy, thus maltreated; the jangling of chain harness and the clanging or jingling of every other conceivable thing else, augmented by the shriekings and bellowsings called for from those of God's creatures who desired to impart information or proffer a request vocally—raised a din that, as has been said, is beyond conception. It was not any such paltry thing as noise. It was an immensity of sound—like to the bubbling of Cotopaxi lavas! Sad it is that the motor car arrived before the aeroplane, and that no person was ever to hearken to the voice of London, mellowed to sublimity, from five miles overhead.

But London had also scenes unforgettable in the rare beauty of them; and here is a peep at one such before we turn to things more near to us. The scene is, again, the Strand; a mild cloudy night in November. The darkness is enchanted by the weak flickering yellow light of dispersed fish-tail gas-jets, and the veiled glow from festive windows. The pavement is alive with plebeian feasters, pit-ites and gallery-ites; the roadway with the cabs and carriages bearing jewelled bosoms and expansive shirt-fronts to stalls and dress circles. These suddenly, with one intent, draw cautiously to the kerbside and foot passengers come to a stand as distant swelling shouts as of terror and alarm, 'Hil Hil Hil'

demand central roadway for racing fire-engines. Soon, visible in flashing brasswork and vomitings of glowing cinders, they come successively behind the pounding hoofs of horses that, in struggling to gallop against the heavy weight of engine, boiler, and bunkers at their tail which swings pendulum-wise even through thirty degrees, seem to claw desperately at the roadway for foothold. The first thunders dangerously past with coachman leaning back against reins twisted in his separated fists, fire at its funnel and fire in trail from its furnace; and so a second and a third with rush and clamour till all is dimmed to silence in the distance, and the gazers on the pavement and traffic at the kerb-side stir again to life.

Unforgettable moment to a student of architecture, newly savouring London: a London that quite otherwise than now was identified with the aristocracy of the professions, and emphatically with that of architecture. It would be hard indeed to name any architect of those days whose work has preserved memory of him, other than men practising in London; except a certain few celebrating the capitals of Ireland and Scotland. Aston Webb may not have attained highest rank in that aristocracy, but all generalities bearing on his methods and organization and the ambit of his activities that may be revealed by peeps at them, will be true for the top dogs of those days.

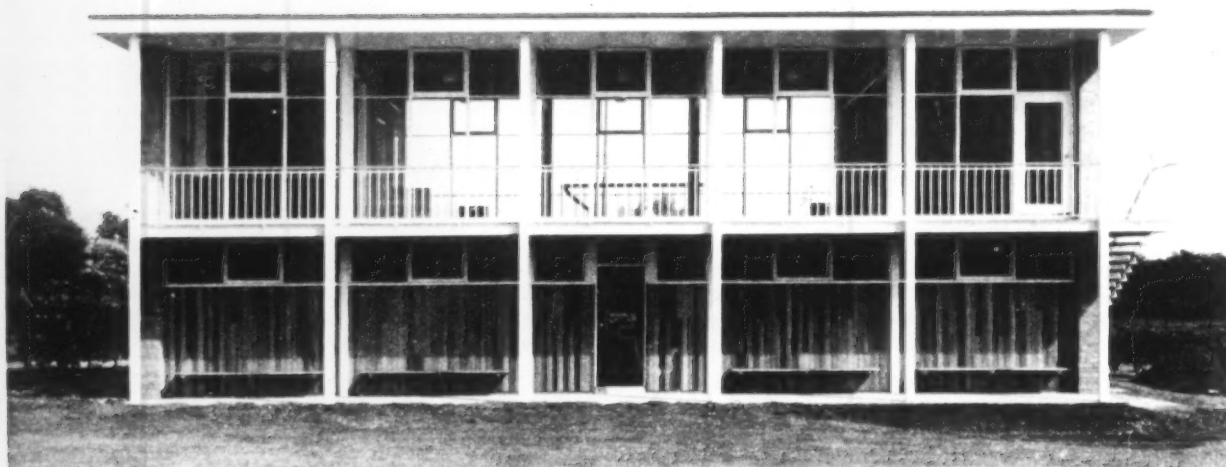
Webb was essentially a happy little man; he gloried in his powers and nothing seemed to bother him or obstruct the fecundity of his ideas. A little man he was, alike in bodily make-up and in his conventional outlook on life and affairs in which, for him, the prominent man was the great man and the only measure of attainment was success. It was beyond thinking that he cared a sniff for the work of Morris, Philip Webb, Nesfield and so forth. His contentment was sumptuous, his demeanour modest to admiration; he was widely esteemed both personally and professionally, and he was truly an artist from his toes to the tips of his fragile lightly boned fingers, characteristically blackened with the soft H.B. lead with which he slapped his designs down on cartridge paper 'because it bites so nicely,' hissing through his teeth meanwhile like an ostler curry-combing a horse, in exultation, as it would seem, at his own facility which is demonstrated alike in his Pugin drawings and in



11, detail of the main entrance.

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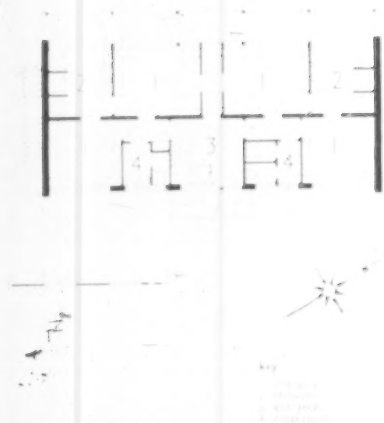
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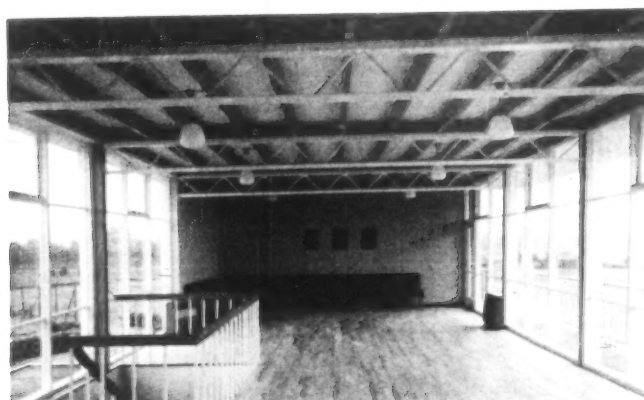
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delightful course, continuous in width and kinship with Fleet Street, to Ludgate, is the best worthy of peeps since it was the throbbing heart, of the people's essential London. Hedged by a maze of contiguous alleys and courts, the Strand was fronted by numbers of little restaurants whose windows vaunted exquisite feeding; taverns, dives, oyster and wine bars, ham and beef shops; and small shops marketing a lively variety of curious or work-a-day things all standing in rank, shoulder to shoulder, to fill the spaces between its many theatres; with potato ovens, and roast chestnut standings at the kerb-side, and the cat's-meat man and his gruesome haunch of omnibus horse trafficking early. But the mud! And the noise! And the smell! All these blemishes were 'ze mark of ze 'orse'—*ecce signum 'Podsnapery'*.

The whole of London's crowded wheeled traffic—which in parts of the City was at times dense beyond movement—was dependent on the horse: lorry, wagon, bus, hansom and 'growler,' and coaches and carriages and private vehicles of all kinds, were appendage to horses. Meredith refers to the 'anticipatory stench of its cab-stands' on railway approach to London; but the characteristic aroma—for the nose recognized London with gay excitement—was of stables, which were commonly of three or four storeys with inclined ways zigzagging up the faces of them, and whose middens kept the cast-iron filigree gas chandeliers that glorified the reception rooms of upper and lower middle class homes throughout London, encrusted with dead flies and, in late summer, veiled with jiving clouds of them.

A more assertive 'mark of ze 'orse' was the mud that, despite the activities of a numerous corps of red-jacketed boys who dodged among wheels and hooves with pan and brush in service to iron bins at the pavement-edge, either flooded the street with churnings of 'pea soup' that at times collected in pools overbrimming the kerbs, and at others covered the road-surface as with axle grease or bran-laden dust to the distraction of the wayfarer. In the first case, the swift-moving hansom or gig would fling sheets of such soup—where not intercepted by trousers or skirts—completely across the pavement, so that the frontages of the Strand throughout its length had an eighteen-inch plinth of mud-purge thus imposed upon it. The pea-soup condition was met by wheeled 'mud-

carts' each attended by two ladders clothed as for Icelandic seas in thigh boots, oilskins collared to the chin, and sou'westers sealing the back of the neck. Splash Ho! The foot passenger now gets the mud in his eye! The axle-grease condition was met by horse-mechanized brushes, and travellers in the small hours found fire-hoses washing away residues. Hence arose London's shoe-blacks, registered and red-coat'd, at the kerbside doing a mighty job with blacking and spittle for 2d.; and hence also London's crossing-sweeper of the fashionable quarters.

And after the mud the noise, which, again endowed by the horse, surged like a mighty heart-beat in the central districts of London's life. It was a thing beyond all imaginings. The streets of work-a-day London were uniformly paved in 'granite' sets—i.e. trap; and the hammering of a multitude of iron-shod hairy heels upon it, the deafening, side-drum tattoo of tyred wheels jarring from the apex of one set to the next like sticks dragging along a fence; the creaking and groaning and chirping and rattling of vehicles, light and heavy, thus maltreated; the jangling of chain harness and the clanging or jingling of every other conceivable thing else, augmented by the shriekings and howlings called for from those of God's creatures who desired to impart information or proffer a request vocally—raised a din that, as has been said, is beyond conception. It was not any such paltry thing as noise. It was an immensity of sound—like to the bubbling of Cotopaxi lavas! Sad it is that the motor car arrived before the aeroplane, and that no person was ever to hearken to the voice of London, mellowed to sublimity, from five miles overhead.

But London had also scenes unforgettable in the rare beauty of them; and here is a peep at one such before we turn to things more near to us. The scene is, again, the Strand; a mild cloudy night in November. The darkness is enchanted by the weak flickering yellow light of dispersed fish-tail gas-jets, and the veiled glow from festive windows. The pavement is alive with plebeian feasters, pit-ites and gallery-ites; the roadway with the cabs and carriages bearing jewelled bosoms and expansive shirt-fronts to stalls and dress circles. These suddenly, with one intent, draw cautiously to the kerbside and foot passengers come to a stand as distant swelling shouts as of terror and alarm, 'Hi! Hi! Hi!'

demand central roadway for racing fire-engines. Soon, visible in flashing brasswork and vomitings of glowing cinders, they come successively behind the pounding hoofs of horses that, in struggling to gallop against the heavy weight of engine, boiler, and bunkers at their tail which swings pendulum-wise even through thirty degrees, seem to claw desperately at the roadway for foothold. The first thunders dangerously past with coachman leaning back against reins twisted in his separated fists, fire at its funnel and fire in trail from its furnace; and so a second and a third with rush and clamour till all is dimmed to silence in the distance, and the gazers on the pavement and traffic at the kerb-side stir again to life.

Unforgettable moment to a student of architecture, newly savouring London: a London that quite otherwise than now was identified with the aristocracy of the professions, and emphatically with that of architecture. It would be hard indeed to name any architect of those days whose work has preserved memory of him, other than men practising in London; except a certain few celebrating the capitals of Ireland and Scotland. Aston Webb may not have attained highest rank in that aristocracy, but all generalities bearing on his methods and organization and the ambit of his activities that may be revealed by peeps at them, will be true for the top dogs of those days.

Webb was essentially a happy little man; he gloried in his powers and nothing seemed to bother him or obstruct the fecundity of his ideas. A little man he was, alike in bodily make-up and in his conventional outlook on life and affairs in which, for him, the prominent man was the great man and the only measure of attainment was success. It was beyond thinking that he cared a sniff for the work of Morris, Philip Webb, Nesfield and so forth. His contentment was sumptuous, his demeanour modest to admiration; he was widely esteemed both personally and professionally, and he was truly an artist from his toes to the tips of his fragile lightly boned fingers, characteristically blackened with the soft H.B. lead with which he slapped his designings down on cartridge paper 'because it bites so nicely,' hissing through his teeth meanwhile like an ostler curry-combing a horse, in exultation, as it would seem, at his own facility which is demonstrated alike in his Pugin drawings and in

his most remarkable gifts as a planner, where every need—and nothing needless—falls into place with a completeness and exactness that seems inevitable and was indubitably the expression of the man's fundamental artistry, and explains his unrivalled success in big competitive layouts.

In 1891, Webb, Hon. Secretary at the Institute, was forty-two, with narrow head of light-brown hair balding on top; with happy hazel rabbit eyes and an angry nose with a flattening at the bridge of it as though someone had given it a bat, and a complete absence of any mouth, for the whole of it was screened from view by a gingery brown moustache. The cultivation of such things was in those days not unusual, and there were cups sold with perforated projections at the brims to keep the moustache from becoming involved with thick soups that slobbered the chin and dripped embarrassingly, or bleached by immersions in scalding or corrosive liquids; and there were silver guards to ride on all or any brims, and spoons fitted to like ends. The purpose, in general, of these face-screens undoubtedly was to hide a weak or otherwise detrimental mouth; but Webb's may well have been cultivated at the urge of his natal secretiveness. Further analysis is, however, redundant, for the most excellent portrait of him by Solomon J. Solomon at Portland Place has the rare quality, basic in all great portraiture, of revealing the subject's spiritual make-up. Here Webb confesses to his little tripping, secretive walk with lowered chin and eyes peeping under hat-brim as frankly as to his triumph in his distinctions.

It was said that his predominance in Council at the Institute was won by squatting on the fence till revealed opinion tipped him off on the winning side. This, however, might well have been an unfriendly view of his balanced judgment; and of his clear-sighted persuasiveness well exemplified when he returned to the office from submission of the vast, detailed, one-sixteenth-inch sketch plans and revolutionary layout of Birmingham University, to tell his staff: 'They've swallowed the lot.' Birmingham Law Courts, Christ's Hospital School, the Victoria and Albert Museum, the Victoria Memorial, the new frontage to Buckingham Palace, grain silos at Greenwich, mansions, churches, all the output of a smudgy lead pencil on soft paper in the three-windowed front room on the first floor of 19 Queen Anne's Gate!

How was it all accomplished? Webb's staff consisted of: a chief draughtsman aged about twenty-seven at a salary of £3 per week; a tracer and handyman at probably 30s. a week; a secretarial clerk ditto; an office boy, say 7s.; a newly-employed ex-pupil £1, and five live pupils, including this peeper, who, at premiums of £250 for a three-year term, represented an income of £416 6s. 8d., or some £40 more than the total of the salary list. This excellent arrangement—notoriously exemplified by Sarah Thorne who ran a theatre at Margate where actors paid Sarah for the opportunity to perform to a public who paid her to see their performance—was fundamental to pupillage throughout the profession.

At times of pressure and of Competition output, one or two seniors came into the office of whom the names of David Niven, Robin Dods and A. S. Scott are memorable; but since Webb owned, or held, the lease of the house; let the two upper floors

to quantity surveyors who did much of his work; and housed in the basement the man and wife who serviced the offices; it was an astonishing thing when he confided, with emphasis, that more than half his takings went in expenses. The thing remains beyond understanding, for not many years later, if not then, it was, in general, held that it should cost an architect not more than one pound to gain three. Let it here be noted that it was a high privilege to be accepted as a pupil in the office of one of the outstanding heads of the profession; and that £500 was paid for that privilege. Webb, who was then but newly prominent, no doubt later received top-dog fees.

The organization of Webb's office relates rather to days when Wren could order a forest of oak to be thrown for St. Paul's on a half-sheet of notepaper, than to days such as ours. He rode every morning from his home in Ladbroke Grove across Hyde and James' Parks and up Bird Cage Walk on a stout cob with a rigid riding-school seat that promised well for the medicinal benefit he sought by the exercise; and arrived at the office to get out of his breeches by 9.30. Placidity ruled. He read his letters, which were few and brief, and then sat to his drawing board, where he solidly remained, with few interruptions, other than a short hour's break when he tripped across to his Club in St. James' Street for a spot of lunch, till about 7. He had no elevenses; no cup of tea with two digestive biscuits in the saucer was ever taken to him at four o'clock. He rarely went on to his jobs and none of his staff ever did. His clerks of works—often from afar—came to him, reported and received his orders. When a contractor's representative called to protest that the girth of mouldings on a F.S. exceeded specified measure, he took the sheet, rapidly redrew, and nodded the man goodbye with no more ado; and when a bulky report from one of our Colonies—where a prison of adobe was being built from his design—was delivered, he scribbled 'Seen, A.W.' across the corner and it was handed back to the Government-office messenger who brought it.

He dictated his letters in the early afternoon when the matters they dealt with had been meditated on at the drawing board. At that time typewriters, and telephones, with motors and electric light, as well as phonograph and bioscope—forerunners of the gram and the movie—were not in being, and telegrams were so great a rarity that the immediate response to the delivery of one was alarm. Letters were written in clerkly longhand—if not holograph—on single or double sheets of small social notepaper in a glutinous purple 'copying ink'; and, when dry, blotty and imperfect printings in reverse were obtained from them by pressure on damped flimsy paper, which could be read from the back. These flimsies were strongly bound in a heavy volume and numbered for indexing so that it was possible, after recognizing its description in the index, to run any letter to ground by licking the fingers and paging through the book until a point was reached where the wanted leaf could be separated from its neighbours by holding them slackly between the balls of the thumbs and exercising a little patience in blowing upon their edges. Things were, however, by no means so simple when indexing had been postponed for many weeks and it was important that the letter needed should be available within the space of a few

hours! Incoming letters were more readily dealt with: they had only to be threaded on laces and thrown into the bottom of a cupboard so that should Webb at any time wish to refer to a letter—as sometimes happened—his secretary had merely to go down on his knees and drag successive lace-loads out into the light until he recognized the bundle he wanted and could beat the dust out of it and settle down to sort it through until the actual letter itself was identified.

We grin: but are we so entitled? In the result all worked smoothly and efficiently without the scrambling complexities that now burden us; and it may be recounted that some twenty years ago Arnold Mitchell, who had recently completed a large block adjoining Berkeley Square in less time than an American architect had taken to put up a comparable building near by, mentioned to an acquaintance that he wrote all his letters with his own hand and that his press-copy book had been in use for fourteen years. When asked how he was able thus to maintain direction of the contractor, he said, 'Ask him to lunch!'

In Webb's office all contract drawings were inked in and coloured on hot-pressed Whatman; and after being further dirtied with droppings of tea, and otherwise, by the quantity surveyors, were traced on linen and became the copies due to the contractor. There were no mechanical reproductions then in being. The originals of working drawings were supplied to the contractor after sufficient hurried pencilled records of them on tracing paper had been pasted on lining paper. The only Indian ink available was in sticks an inch and a half long embossed in gold with the figure of a dragon to discourage any ideas of lamp black by proclaiming origin in Chinese cuttle fish. This was rubbed to a requisite density on a palette in a half-teaspoon of water to which a little ox-gall was added to ensure viscosity. The ruling pen was loaded by touching it delicately, edge-on, upon the surface of the ink, for capillary completion; and was then ready for service after its nose had been wiped. This nose-wiping called for caution. The adept tracer's efficiency in wiping was brilliant. He turned back the lower part of his waistcoat and all was done in an automatic pass at his belly identical with the instinctive action of a sparrow whetting its bill. The first appearance in an architects' office of a bottle of Indian ink, densely black, flowingly viscous, waterproof and with quill dipper in its cork, was a great event. And yet?—never mind!

Now has come the moment to speak of the soot that incredibly dirtied London even to the begriming of the nostrils, and of the ungloved hands; for flakes of soot drifting continuously down to blacken and greasily deface the laboured drawing was so frequent an annoyance that the plague of it outwore all cursings. And as for the sea fogs of the estuary chokingly loaded with the smoke of myriad eastern chimneys, and cheerily accepted as 'London particulars,' which once, at mid-summer, created a panic scramble of afternoon shoppers in Tottenham Court Road, by allowing the sun suddenly to pierce it with a flaming redness purporting volcanic origin, they are no longer imaginable.

Before quitting Webb's office to peep at the architectural scene beyond, the mouth that many readers opened in astonishment at the scale of salaries paid by Webb

must be closed. Beyond question Webb paid the full market rate for the service he received, for he would have done no less.

At the time spoken of, his pupils came to the office, as did the chief draughtsman, gloved and rigorously dressed in well-tailored morning coat, boiled dress shirt with starched stand-up collar, top-hatted and carrying a closely-rolled silk umbrella; a get-up varied only on social occasions by substitution of a frock coat for a tailed one; but not varied even for crowdings into the galleries of theatres. This peeper 'had diggins' in the two ground-floor rooms of a Cubitt-built house sited in Belgravia at St. James, and in Pimlico at Bow Street. He drank beer with a three-course dinner, had full attendance, and, without any sense of deprivation or money shortage, lived for three years on a fixed allowance of one hundred pounds a year, and no more.

In the years spoken of the aesthetes tailored in pastel plushes and satirized by Gilbert in *Patience* were personified in crowded drawing rooms decorated with crossed Japanese fans and lily-painted door-panels, by a large, soft, cream-coloured man—protagonist of *Yellow Book* 'decadents'—who was doted on when he extolled the deliciousness of silk underclothing. In these years, also, the intolerances that assailed Browning, Meredith, Wagner, and Rodin, branded every established architect as delinquent for his attachment to Classic, or to Gothic or to the heresy of eclecticism. The animosity thus evoked exceeded any now dividing traditionalists and moderns. The inveteracy of these adhesions and repulsions is exemplified by the wide enjoyment at the supposed disgust of Rowand Anderson—a renowned classicist of Edinburgh—on the appeal to him of one of his pupils—'If ye please, Sir, ma mither says I've got tae learn ta go'ick'; and their obstinacy by Charles Annesley Voysey, who built a Gothic scent shop in Bond Street, and who, no more than twenty years ago, when a friend, amused at the violence of his prejudices and seeking to flummox him, said: 'Well, you can't say you don't admire Church Row, Hampstead!' was answered with: 'Ah! but Church Row was designed by gentlemen,' with emphasis to mark the extreme rarity of such an exception to the rule.

Again in these years the world of architecture was rent by the all-embracing soul-racking question: was Architecture an Art or a Profession? The story is well enough known. T. G. Jackson and Norman Shaw were the protagonists on the side of Art; the Institute represented the Professionals. The intention of the Institute was to introduce Registration—examinations alone qualifying for membership. Anyone who had seen—as he might—a hefty plumber riding his bicycle in the streets of a provincial town inside a coil of service pipe on the first day of one month, and accepted on the second day of the next as a duly brass-plated Architect and Surveyor, on the strength of his appointment as 'Surveyor' (of drains) to a school, could well understand the motive of the Institute's providence of examinations; but providence of the education necessary to pass those examinations was bleakly remote in the eyes of the pupils of the men imposing the examinations who, astonishing to record, in no way concerned themselves with the education of their pupils.

As Webb was the last who would ever seek to avoid his obligations or, for that matter, vary from conduct

that was conventionally correct; his official regard for the welfare of his pupils, whose complete loyalty he held, may be taken as the correct one.

His five pupils were all well-connected and at one in public school affinities. They attended daily on the same footing as the salaried staff; each was allotted such tasks as he could tackle by the chief draughtsman and he was free to make himself of use as his abilities allowed, and gain such knowledge of building and design as his curiosity, gumption, or ambition led him to do. Beyond recommending membership of the Architectural Association and, by examination, of the Institute, Webb concerned himself in no way with how his pupils were preparing themselves, or neglecting to prepare themselves, for the career to which they were dedicated, though he entertained them with great kindness at his home. Two of those pupils, charming fellows both, entirely lacked all aptitude, purpose or ambition, and Webb could only have justified their pupilage by feeling that they were as well employed wasting their time in his office as anywhere else. Another became a stained-glass merchant; yet another, distinguished by scholarly taste and outstanding capacity as a draughtsman failed, through a long life, to announce himself in architecture; and the last lived to resent deeply that Webb made use of his pupils' time without regard to whether the time so spent was of use to his pupils.

One lesson his pupils had of Webb was by no means well learned. The hoofmark of the engineer—as it was then regarded by the elect of the Art and/or Profession—was already in evidence; and forgetful of the linked beams bolstering the Duomo at Florence; and of the dome of St. Peter's sustained through generations with successive girdlings; and of the chain of welded iron plates circling the base of London's St. Paul's; and of the joggled blocks of Whitbed strung like beads along cast iron girders, in simulation of monolithic lintols, at the British Museum—forgetful of all this, the elect and their disciples deplored lofty frontages carried on the plate glass of shop windows and, regardless of the claims of salesmanship, execrated such examples of engineering skill as, by the use of cantilevers, represented the return angle of a lofty building as entirely unsupported, other than by 'sky hooks'—a term of derision then rife.

Webb, however, appears to have had no attachment to such prejudices of the elect. The offices he built for an insurance company on a corner site in Moorgate are entered diagonally, and have heavy scrolled and foliated brackets of Portland on each side of the doorway supporting the overhanging face above. The design gratifies the viewer's sense of stalwart masonry construction holding the weighty projection it sustains from falling off into the

street. Webb, however, had no such confidence. He employed an engineer to sustain it. The engineer, who was a humble person, came to the drawing office after securing Webb's approval of his devisings, and explained with gusto how his contraption was not, as seemed, grapplings from a shipwreck, but a contrivance so combining cantilever and beam as to demand rivetings to meet torsion and shear.

Webb's crowning achievement in this kind is, however, enshrined in the little church he built for the French Protestants in Soho Square. Its frontage of a rarely-seen grey-purple Luton brick, with dressings of red terra-cotta enriched—as are his Birmingham Law Courts—with modellings reminiscent of Blois, exhibits him at his happiest; but its interior reveals him as, constructionally, too far ahead of his time!

This peeper knows that he must be regarded as a mere mortuary attendant on a dead horse which he has spent much of his life in flogging, and which now stinks in the general nose; and that to modern notions it is no discredit to Webb's system of construction that its employment in this little church revolts him. Nave, aisles and apse are of gamboge terra-cotta of ashlar affinity far removed from the traditions of the Holbein Gateway and Laver Marney; but these concrete-filled boxes of well-puddled and thumbed clay, were requisitioned by the architect only to profess the purpose of their fabrication without performing it; for the terra-cotta of the piers and arches of the nave merely clothe a framework of steel stanchions and binders.

Webb's constructive prevision, however, as exemplified in this church, reaches beyond all conceptions current today; for in an apse, with a periphery of some twenty-five feet, he has two seven-foot-wide openings with flat arches which, on plan, are accordingly strongly curved. The whole conception, though severely architectural and in spite of its voussoirs being conscientiously joggled, does not, in this peeper's opinion, satisfy the conditions of structural integrity with sufficient emphasis to justify the design; although the engineer who made the enormity possible may think otherwise.

Acceptance by architects of the encroachments of the engineer were general earlier in America than with us. The monumental 'Archives' of John Russell Pope at Washington, for instance, built twenty-five years ago, has twenty-ton marble cornice-returns anchored to steel roof-members; and the coffered blocks of the barrel vaulting over its side entrances—although with ample abutments—are each suspended by lewis boltings to a raft of steel joists above. Thus are peaceful slumbers ensured to architects—and to their wives!

By comparison, the work-a-day mechanisms of building in those days

are no less curious to look back on. This peeper can still recall the moment when he stood in startled admiration on seeing a bucket of mortar being hoisted to a scaffold by a rope passing over a ten-inch pulleywheel, for all loads were at that time humped aloft by men climbing successive ladders from stage to stage of scaffolding which, even on the spires of churches, was uniformly constructed of poles secured by wedges driven into rope bindings. It would seem that masonry must always have been largely slung with lewis bolts; but bricks up to a total of sixteen, and mortar and plasterers' stuff and parge for chimneys—which was always mixed with cow-dung to secure imperviousness—were carried uniformly in a thing hardly now ever seen but which will not need describing—namely the hod. The labourers who did this heavy work were hefty men muscularly attuned to it; and as the hod allowed both hands free, so did the ring-pad on the head allow a two-foot-six square of ledged planks to be carried balanced like the tray of the muffin man whose tea-time bell was welcomed in middle-class residential districts. Upon this square of boards mortar was laddered to the bricklayer, and if at this time anybody may be curious of the origin of the collegiate 'mortar board,' no one in those days was. It was a general rule embodied in a standing clause of specifications, that stone should be worked on the building site, and it was delivered thereon in bulk to that end. This brought into prominence for the transport of worked stone from bench to its bedding, a thing now scarcely known called a 'hand barrow'; a might-be mortar board, supported on bearers with handholds for the two men in service to it.

So the happy work went on in sunshine or in shadow mid clean bracing smells and ringing trowels and manly voices, where the architect still abode in kinship to the tradition of crafts sacred to past ages, and to the attainment of mankind's loftiest aspirations.



H. B. Cresswell in his garden.

BOOKS

EMPIRICAL AESTHETES

THE BEAUTIFUL, THE SUBLIME, AND THE PICTURESQUE IN EIGHTEENTH-CENTURY BRITISH AESTHETIC THEORY.

By Walter John Hipple Jr., *The Southern Illinois University Press*, 1957. \$7.

Yet again we are indebted to American industry for a valuable contribution to the study of British art history, though Professor Hipple insists that his work is not a history, either of taste or speculation, but a *précis* of the relevant 'systems of ideas'; actually, critical and comparative digests of the theoretical writings of the principal British 'aestheticians' (as he conveniently if rather unattractively calls them) of the eighteenth century. The first part, 'Beautiful and Sublime,' comprises Addison, Hutcheson, Hume, Hogarth, Gerard, Burke, Kames, Blair, Reynolds, Reid and Alison. The second, 'Beautiful, Sublime, and Picturesque,' deals with Gilpin, Price, Repton, Payne Knight and Dugald Stewart, with chapters devoted to the Picturesque itself and the controversies of its protagonists. Each 'system' is presented chronologically, as a whole and in its author's own terms, to avoid the 'distortion' involved by 'wrenching fragments out of their systematic contexts in order to illustrate a thesis or in pursuit of a topic,' which Professor Hipple regards as the defect of most similar surveys.

Most writers on aspects of eighteenth century taste are no doubt guilty of this offence, in so far as they seek to demonstrate a pattern of development from its manifestations, and they are duly taken to task for their partial superficiality. An early work by the present reviewer does not escape genial reprimand on this score, the justice of which he admits more readily after benefiting from the Hipple regime. Indeed, the Professor puts all students of the period under a lasting debt by his pre-assimilation of a range of literature little of which is easily digested by the impatient; though it must be owned that even the processed outcome requires a good deal of mastication for its nourishing essences to be extracted.

The advantage, and it is a valuable one, gained from such analysis of successive writers individually of course is that we can follow clearly their trains of thought and methods of expression, which it is the book's main purpose to demonstrate. Its drawback for the general reader is the difficulty produced for him of seeing the effect of the wood through the ramifications of its trees; and he is not helped by the author's view, reserved for his concluding summary but affecting the presentation throughout, that he finds in Georgian aesthetic thought 'little pattern and no prediction.' Anybody who has tried consis-

tently to read some of these authors will sympathize with this confession. But it can also be accounted for to some extent by Professor Hipple's examining eighteenth-century British aesthetic thought detached from the broad trends of post-renaissance Europe on the one hand; and on the other, despite some references to manifestations of visual taste, without drawing sufficiently for illustrative allusion on the landscape and architecture of the age. For these were not so much the background as the actual setting and occasion for much of its more significant aesthetic theorizing, to a real extent affording the pattern and prediction he misses.

Bosanquet long ago pin-pointed the reason why the eighteenth century took so intense an interest in the nature of beauty and beauty of nature—unprecedented since the classical era. Not till then had critical perception and philosophical thought got together sufficiently to enable the theories inherited from antiquity to be sorted out in the light of contemporary feeling, and valid conclusions on aesthetics to be drawn from individuals' reactions to the antitheses posed by classical, renaissance, and current conceptions. Hipple assumes the reader's awareness of such historical sign-posts, and of the fact that, before the period opens, British metaphysic had developed a characteristic preference for the empirical, in contrast to the Cartesian, approach: for regarding reality as the sum of individual sense-perceptions, rather than relying on a rational system deduced from *a priori* conceptions of universal principles. This was to be of crucial importance to us in the eighteenth century, encouraging the national propensity for breaking down complex phenomena into elementary concepts from which practical conclusions could be drawn and new syntheses composed. It paved the way in 'natural science' for the discoveries leading to the industrial and agricultural revolutions; and in aesthetics for the notion that Taste is fundamentally a matter of psychology.

Had Professor Hipple committed himself to some such preliminary generalizations, his admirably clear analyses of successive aestheticians would be more easily followed and be seen to fit into a broadly recognizable pattern that quite clearly predicts the conditions prevailing in the nineteenth century. For although the 'Georgian Age' is generally regarded as the essentially 'classical' period of English architecture and taste, its aestheticians, if read consecutively, present a quite different picture: of pre-occupation with morals, feelings, individuality, 'romance,' science, and above all Nature—in fact exactly those values popularly regarded as 'Victorian.' Thus the successive phases of neo-classical theory that the century experienced can be seen for what they were, alien influences imposed by fashion, and by moves in the process of adjusting current to antique aesthetic values, on people whose empirical

feelings differed little from their fathers' or indeed our own, and found their most direct expression in the enjoyment and creation of the English landscape. That, it can be seen now, was the century's characteristic and outstanding achievement in the arts; as was, in its thought, the conviction that indulgence of extremes in either direction was contrary to 'true taste' because sanctioned neither by 'nature' nor 'good sense.' The classical quality of the age lay in the intricate psychological balance that its philosophers evolved; the beautiful synthesis of primeval dichotomies, of 'reason and passion, classical and romantic, the beautiful and the sublime (yielding the picturesque), of Apollo and Dionysus.' And, as Mr. E. F. Carrington goes on to remark in a slightly different connection, 'the natural place in which we look for the facts to test this theory is England in the eighteenth and late seventeenth centuries,' where the battle was fought out. The synthesising medium evolved and enthroned for the age by its aestheticians—and this was their great service—was the concept of 'taste' and its broad identification with 'good sense.' How this good sense came to be cultivated to the pitch it was, and its standards to be so generally observed, is a question that the twentieth century could, to its great advantage, examine much more closely than it does: not in order to imitate its styles but as some guide to resolving a dichotomy which remains essentially the same, but has for a century been splitting civilization. Professor Hipple cannot be said to sound a clarion call to that crusade or to direct a searchlight on its path; but he provides much testimony of experience useful to any inclined to pursue it.

In the first part we witness Addison's triple division of the field, that was to be so persistent, into 'the Great, the Uncommon, and the Beautiful': followed by increasing recognition, which Hipple shows is traceable to Hume, of associational psychology ('beauty no quality in things but existing in the mind of the observer'). Extended by Gerard and Burke to include, for the first time, the Fearful among the sources of aesthetic satisfaction, association had little place in the systems evolved by the artist-writers, among whom Hipple pays high tribute to that of Reynolds. The aesthetic to which he accords the most respect, being developed wholly in terms of ideas and habits of imagination, is Archibald Alison's produced at the very end of the century. He considers Alison's concept of 'trains of thought,' together with his grasp of philosophical method, to have revolutionized aesthetic speculation, and that his influence on the romantic period has never been adequately recognized. Admirably comprehensive as Alison is *qua* system, nevertheless we may also see in his triumphant assertion of associational values over the earlier belief in the existence of finite standards of beauty, however fanciful these were, the primary explana-

BOOKS

EMPIRICAL AESTHETES

THE BEAUTIFUL, THE SUBLIME, AND THE PICTURESQUE IN EIGHTEENTH-CENTURY BRITISH AESTHETIC THEORY. By Walter John Hipple Jr., *The Southern Illinois University Press*, 1957. \$7.

Yet again we are indebted to American industry for a valuable contribution to the study of British art history, though Professor Hipple insists that his work is not a history, either of taste or speculation, but a *précis* of the relevant 'systems of ideas'; actually, critical and comparative digests of the theoretical writings of the principal British 'aestheticians' (as he conveniently if rather unattractively calls them) of the eighteenth century. The first part, 'Beautiful and Sublime,' comprises Addison, Hutcheson, Hume, Hogarth, Gerard, Burke, Kames, Blair, Reynolds, Reid and Alison. The second, 'Beautiful, Sublime, and Picturesque,' deals with Gilpin, Price, Repton, Payne Knight and Dugald Stewart, with chapters devoted to the Picturesque itself and the controversies of its protagonists. Each 'system' is presented chronologically, as a whole and in its author's own terms, to avoid the 'distortion' involved by 'wrenching fragments out of their systematic contexts in order to illustrate a thesis or in pursuit of a topic,' which Professor Hipple regards as the defect of most similar surveys.

Most writers on aspects of eighteenth century taste are no doubt guilty of this offence, in so far as they seek to demonstrate a pattern of development from its manifestations, and they are duly taken to task for their partial superficiality. An early work by the present reviewer does not escape genial reprimand on this score, the justice of which he admits more readily after benefiting from the Hipple regime. Indeed, the Professor puts all students of the period under a lasting debt by his pre-assimilation of a range of literature little of which is easily digested by the impatient; though it must be owned that even the processed outcome requires a good deal of mastication for its nourishing essences to be extracted.

The advantage, and it is a valuable one, gained from such analysis of successive writers individually of course is that we can follow clearly their trains of thought and methods of expression, which it is the book's main purpose to demonstrate. Its drawback for the general reader is the difficulty produced for him of seeing the effect of the wood through the ramifications of its trees; and he is not helped by the author's view, reserved for his concluding summary but affecting the presentation throughout, that he finds in Georgian aesthetic thought 'little pattern and no prediction.' Anybody who has tried consis-

tently to read some of these authors will sympathize with this confession. But it can also be accounted for to some extent by Professor Hipple's examining eighteenth-century British aesthetic thought detached from the broad trends of post-renaissance Europe on the one hand; and on the other, despite some references to manifestations of visual taste, without drawing sufficiently for illustrative allusion on the landscape and architecture of the age. For these were not so much the background as the actual setting and occasion for much of its more significant aesthetic theorizing, to a real extent affording the pattern and prediction he misses.

Bosanquet long ago pin-pointed the reason why the eighteenth century took so intense an interest in the nature of beauty and beauty of nature—unprecedented since the classical era. Not till then had critical perception and philosophical thought got together sufficiently to enable the theories inherited from antiquity to be sorted out in the light of contemporary feeling, and valid conclusions on aesthetics to be drawn from individuals' reactions to the antitheses posed by classical, renaissance, and current conceptions. Hipple assumes the reader's awareness of such historical sign-posts, and of the fact that, before the period opens, British metaphysic had developed a characteristic preference for the empirical, in contrast to the Cartesian, approach: for regarding reality as the sum of individual sense-perceptions, rather than relying on a rational system deduced from *a priori* conceptions of universal principles. This was to be of crucial importance to us in the eighteenth century, encouraging the national propensity for breaking down complex phenomena into elementary concepts from which practical conclusions could be drawn and new syntheses composed. It paved the way in 'natural science' for the discoveries leading to the industrial and agricultural revolutions; and in aesthetics for the notion that Taste is fundamentally a matter of psychology.

Had Professor Hipple committed himself to some such preliminary generalizations, his admirably clear analyses of successive aestheticians would be more easily followed and be seen to fit into a broadly recognizable pattern that quite clearly predicts the conditions prevailing in the nineteenth century. For although the 'Georgian Age' is generally regarded as the essentially 'classical' period of English architecture and taste, its aestheticians, if read consecutively, present a quite different picture: of pre-occupation with morals, feelings, individuality, 'romance,' science, and above all Nature—in fact exactly those values popularly regarded as 'Victorian.' Thus the successive phases of neo-classical theory that the century experienced can be seen for what they were, alien influences imposed by fashion, and by moves in the process of adjusting current to antique aesthetic values, on people whose empirical

feelings differed little from their fathers' or indeed our own, and found their most direct expression in the enjoyment and creation of the English landscape. That, it can be seen now, was the century's characteristic and outstanding achievement in the arts; as was, in its thought, the conviction that indulgence of extremes in either direction was contrary to 'true taste' because sanctioned neither by 'nature' nor 'good sense.' The classical quality of the age lay in the intricate psychological balance that its philosophers evolved; the beautiful synthesis of primeval dichotomies, of 'reason and passion, classical and romantic, the beautiful and the sublime (yielding the picturesque), of Apollo and Dionysus.' And, as Mr. E. F. Carritt goes on to remark in a slightly different connection, 'the natural place in which we look for the facts to test this theory is England in the eighteenth and late seventeenth centuries,' where the battle was fought out. The synthesising medium evolved and enthroned for the age by its aestheticians—and this was their great service—was the concept of 'taste' and its broad identification with 'good sense.' How this good sense came to be cultivated to the pitch it was, and its standards to be so generally observed, is a question that the twentieth century could, to its great advantage, examine much more closely than it does: not in order to imitate its styles but as some guide to resolving a dichotomy which remains essentially the same, but has for a century been splitting civilization. Professor Hipple cannot be said to sound a clarion call to that crusade or to direct a searchlight on its path; but he provides much testimony of experience useful to any inclined to pursue it.

In the first part we witness Addison's triple division of the field, that was to be so persistent, into 'the Great, the Uncommon, and the Beautiful': followed by increasing recognition, which Hipple shows is traceable to Hume, of associational psychology ('beauty no quality in things but existing in the mind of the observer'). Extended by Gerard and Burke to include, for the first time, the Fearful among the sources of aesthetic satisfaction, association had little place in the systems evolved by the artist-writers, among whom Hipple pays high tribute to that of Reynolds. The aesthetic to which he accords the most respect, being developed wholly in terms of ideas and habits of imagination, is Archibald Alison's produced at the very end of the century. He considers Alison's concept of 'trains of thought,' together with his grasp of philosophical method, to have revolutionized aesthetic speculation, and that his influence on the romantic period has never been adequately recognized. Admirably comprehensive as Alison is *qua* system, nevertheless we may also see in his triumphant assertion of associational values over the earlier belief in the existence of finite standards of beauty, however fanciful these were, the primary explana-

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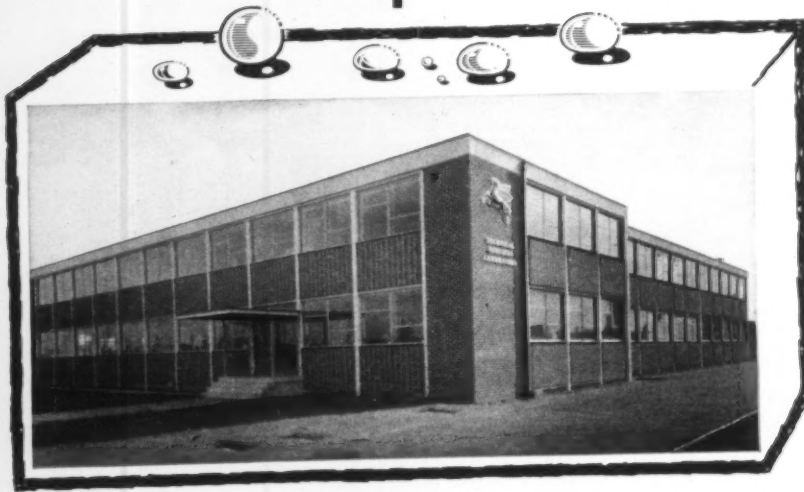
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tion of the chaos into which taste dissolved during the nineteenth century.

But that process was arrested, or at least postponed, by the degree of visual and intellectual objectivity sustained by the concepts of the Picturesque. Exposition of the somewhat complex arguments over its 'principles' is admirably conducted in the book's second part. It was in England that the Picturesque, originally connected rather with history painting, came to be applied intensively to landscape, and, with its appeal to native empirical habits of thought, can be said to have become the aesthetic creed most suited to and most effectively practised here at any time. Yet neither Price nor Knight appear to have read Alison, and Professor Hippie can show where both fell short as aesthetic philosophers through failing to develop fully the associational factors in their theories; although Price tacitly, and Knight to a notable extent, took these into account. Indeed Knight, he observes surprisingly, 'is not only an aesthetician but a moralist of stature.'

It may be gathered from this review that *The Beautiful, the Sublime and the Picturesque* is, as to three quarters of it, concerned with the philosophy and systems of aesthetic thought, much of which are largely above my intellectual reach. But those better equipped to profit from them, and not requiring short answers to practical questions, will find it of absorbing interest, as I have myself, though without feeling greatly the wiser at the end of it.

Christopher Hussey

US FUNCTIONAL TRADITION

NATIVE GENIUS IN ANONYMOUS ARCHITECTURE. By Sigal Moholy-Nagy. Horizon Press. \$7.50.

This book is a formidable swipe at runaway technology and its verbose prophets. Thank goodness; and thank goodness that it has come from America and about America, so that its message can come across without any sense of being a western-European sermon to the New World. It is a record of anonymous buildings—farms, barns, mills, warehouses—from Canada to Haiti and from the sixteenth century to the twentieth; a survey of the enormous range of the Functional Tradition in North America which was produced by the liberation of human ingenuity forced on the pioneer settlers when they had to adapt their old techniques to completely different conditions of site and climate. Buildings as fantastic as the structures dreamed up for the space travel magazines have actually been built, and can be seen for the looking in the shrinking countryside of Pa. or Calif.; and built as commonsense answers to basic needs which are as valid and as varied now as they were then (what could be more different, for example, than the needs of the four families in 'No Down Payment?'). Technology should have made the job easier nowadays, and the solutions more exciting; instead it has assumed that because the problem is incommensurable, it doesn't exist—and another branch of runaway technology has had to create

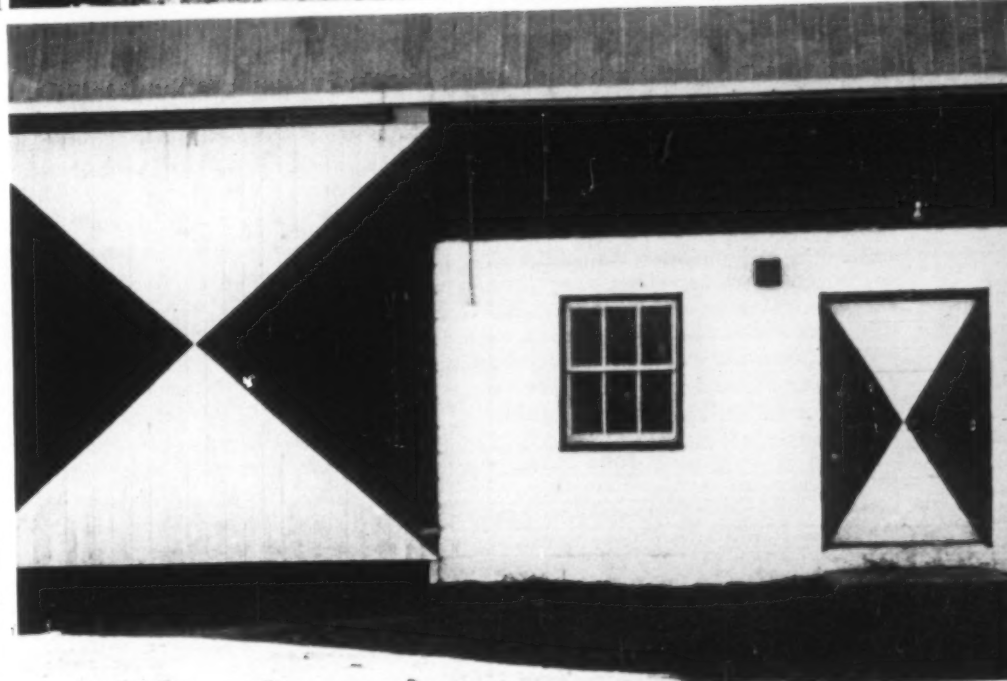
psychoanalysis to try and clear up the resulting mess. If we are going to have this pompous sexless engineers language ('demonstrable increase in performance increments per units of invested resources') let's get the words straight: performance means *total* performance, and the incalculable human terms are the largest in the equation by a long way.

The text of the book is good, the photographs remarkable (most of them taken by the author on what must have been a splendid voyage of discovery), the message not only sound but fundamental. My only reservation is not about the book itself, but the blurb on the jacket: 'the masterly solutions of those . . . who settled away from the big cities in search of a happier, freer, more humane existence.' This is simply to exchange the sterility of

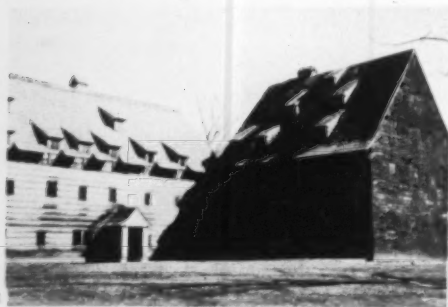
Brooklyn and Levittown for the sterility of Broadacres, and surely a contradiction of Mrs. Moholy-Nagy's arguments, for she also illustrates urban examples such as Renwick's Rhineland Gardens apartments in New York. The Functional Tradition can apply to any method of living and the solution is not a choice between one and the other but the idea of town and country as mutually existing opposites, each developed to the height of their powers, each developed with humane individual solutions.

Men are not machines, and the more this is

US FUNCTIONAL TRADITION: 1, a circular shingle-barn in Clinton, Penn.; 2, abstract paint-job on the doors of a barn in Quebec, two examples of native art in American building.



ignored the bigger the reaction will be. And the reaction is certainly coming: this book is one sign, the recent set of Fortune articles is another, the man in the street's common-sense reluctance to try and park seventeen feet of Chrysler is a third. There is no new man



3, multi-level dormers on the roofs of the cloisters at Ephrata, Pennsylvania.

on the way; there is just the old Adam who has been given a lot of new gadgets to play with. And he is beginning to get fed up with the idea that the gadgets and their human puppet-mouthpieces may be playing with him instead.

Ian Nairn

THE ETHICS IN AESTHETICS

FROM GOTHIC REVIVAL TO FUNCTIONAL FORM. A Study in Victorian Theories of Design. By Alf Boe, Oslo University Press, 1957. Oxford, Basil Blackwell, 18s.

'The beginning of art is in getting our country clean, and our people beautiful. . . . The first schools of beauty must be the streets of your cities.' Nuggets like these from Ruskin still irritate and embarrass many people, even in this 'Outrage' era.

Since Ruskin's time and our own, Roger Fry and the Bloomsbury School of aesthetic philosophers have been all too successful in purging contemporary aesthetic theories of such ethical origins. Today, when the most important problem in pure abstract sculpture lies in the evolution of a beautiful and efficient lighting column and fitting, the wheel has come full circle. For the Borough Engineers have still to be persuaded to use it and their committees to perceive and, if need be, to pay the difference. The theories of the Victorian thinkers in Britain who first wrestled with these problems in a modern industrial, capitalist, and acquisitive society are therefore still of great topical interest. Cobwebs of sentimentality on the one hand and a naive ancestor-hunting for respectable pioneers of the modern movement on the other have confused the story. No such confusion mars Alf Boe's careful and just study of the main trends of Victorian theories of design and their protagonists.

In tracing their story from Pugin, via Ruskin and Morris to Christopher Dresser, he shows that their ideas (and even the advanced thinkers often held strongly differing opinions) were frequently not as they have been popularly supposed. His thesis is a useful addition to the growing literature of various aspects of nineteenth-century design. It has poor half-tone blocks but a good bibliography.

Graeme Shankland

EXHIBITIONS

PAINTINGS AND DRAWINGS

It was nice and even vaguely democratic of the British Council to arrange a preview at Whitechapel Art Gallery of the fifty large contemporary paintings which will soon be passing through the state galleries of Australia. It would have been nicer still if it could have persuaded the selection committee to attempt a justification of its bewildering choice. The occasion is an important one because it is ten years since the Council sent an exhibition of contemporary British painting to Australia, and quite a lot of reputations have been made since then. According to the hand-out, the present selection is intended to show 'something of the work of a younger generation of British painters who are little known there.' It is an ambiguous remark, but appears to imply that many British artists of this 'younger generation' are already well known there and that the Australians want to find out whether there are any important painters between the ages of thirty-eight and forty-eight who are not represented in their galleries. This would suggest that the selection committee was given a list of names that were not to be included. I don't suppose for a moment that such stipulations were made; I'm simply trying to imagine the kind of situation that would induce a body of distinguished critics and gallery directors to send out this group of pictures by Alan Davie, Merlyn Evans, Terry Frost, William Gear, Roger Hilton, Keith Vaughan and Bryan Wynter to show what's been happening here since 1949.

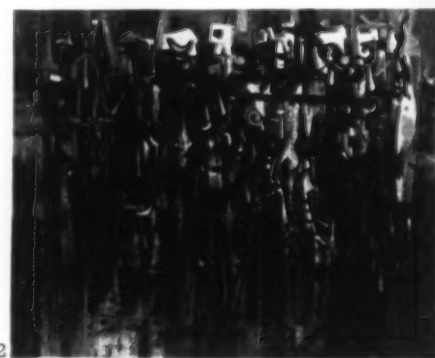
Another possibility occurs to me. Although these seven artists have had their share of official and semi-official recognition, they remain, I understand, rather slow sellers, and it is possible that the selection committee has taken this to be a sign of significant quality. I don't say this jokingly. Some such line of thought has been followed by the critics who speak of David Bomberg as a neglected genius, and, with inexplicable self-satisfaction, regard his memorial show at the Arts Council gallery as evidence that they are just as bad at recognizing great painting as the nineteenth-century critics who laughed at Van Gogh. Bomberg is reaping the posthumous reward of being a different kind of artist from his contemporaries at the Slade. These included, as Andrew Forge reminds us in his introduction to the exhibition, Ben Nicholson,

Paul Nash, Wadsworth and Roberts; painters whose brush strokes leave no tracks. The current taste is for paint marks of a kind that seem to indicate that the artist derived a lot of physical enjoyment from the act of painting, and in the pictures which Bomberg painted around 1948 the large and demonstrative brush strokes survive this test. He had a good if conventional eye for the main features of a landscape, 1, but his sweeping brush



strokes were too suave to serve the physical sense of form that, Forge maintains, was the subject of his art. They express a physical delight in the act of painting and give a number of his works a lively surface, but that's another and slighter achievement.

To get back to the paintings for Australia: it isn't that the choice is absolutely outrageous—all seven painters are obviously talented—it's just that most of the pictures are filled with important-looking calculations, closely connected with the problems of picture-making, which succeed only in arousing one's sympathy for the struggles and frustrations of the men who made them. The pictures which are not ambitious failures are shallow successes, but these at least supply light relief to what would otherwise be a very melancholy spectacle. Bryan Wynter is represented by some amusing tachist caricatures of analytical cubism, and one



of them 'Hostile Tribe,' 2, would make a handsome present for a sophisticated schoolboy in the 10-12 age group. Then there are two or three pleasant examples of Terry Frost's 'stripe' period, in which he discovered that one way of producing an

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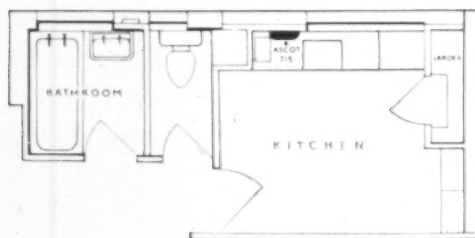
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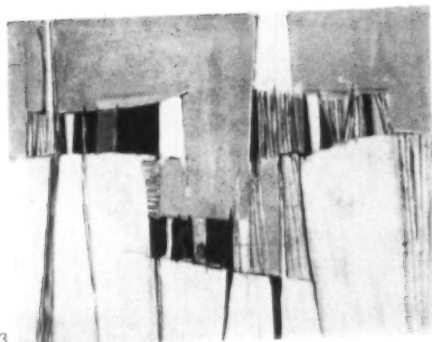


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'abstract' is to get tough with a bit of scenery. In the one called 'Black, White and Red,' 3, he appears to have been pushing some bathing huts around, and in another to have engineered a small explosion in one of Bruno Caruso's neat timber stacks. (Incidentally, Caruso has just had his second London show at Arthur Jeffress, and he, too, is now taking an 'abstract' view of his timber yards. 4. He is still too fond of them to treat them roughly, but he has removed them to a flat world and put the little watchman with a paunch out of a job.)

Seventeen paintings and drawings collected in the thirties by Edward James have been lent to the Tate for an indefinite period and are at present on view in Gallery 21. It's appropriate that they should be together for a time, but it is to be hoped that the five Picassos will eventually be hung beside the examples in the permanent collection. The other things are by Tchelitchev, Chirico, Dali, Magritte and Berman, and I'm afraid that the Picassos in their midst make them look utterly dead and gone. If the examples of Chirico and Magritte had been truly representative they might have stood their ground, for these two men are poetic

outsiders and a law unto themselves; but the pictures by Tchelitchev and Dali are obviously intended as masterpieces in the European tradition. The Picassos are strong and beautiful, but they are all on the sweet side, and it is evident that when Mr. James was collecting these pictures he was not drawn to Picasso's marvellous formal innovations. It is almost incredible that he could respond instead to the eccentricities and morbid distortions



5

of Dali and Tchelitchev. Perhaps he was making a confused stand against eclecticism, and thought of the empty Renaissance-type draughtsmanship of Tchelitchev and Dali as attempts to preserve the 'classical' aspects of Picasso's art, and thus renew the 'purity' of the European tradition. Tchelitchev's academic ingenuity is well exemplified in the painting which the Tate calls 'Studio

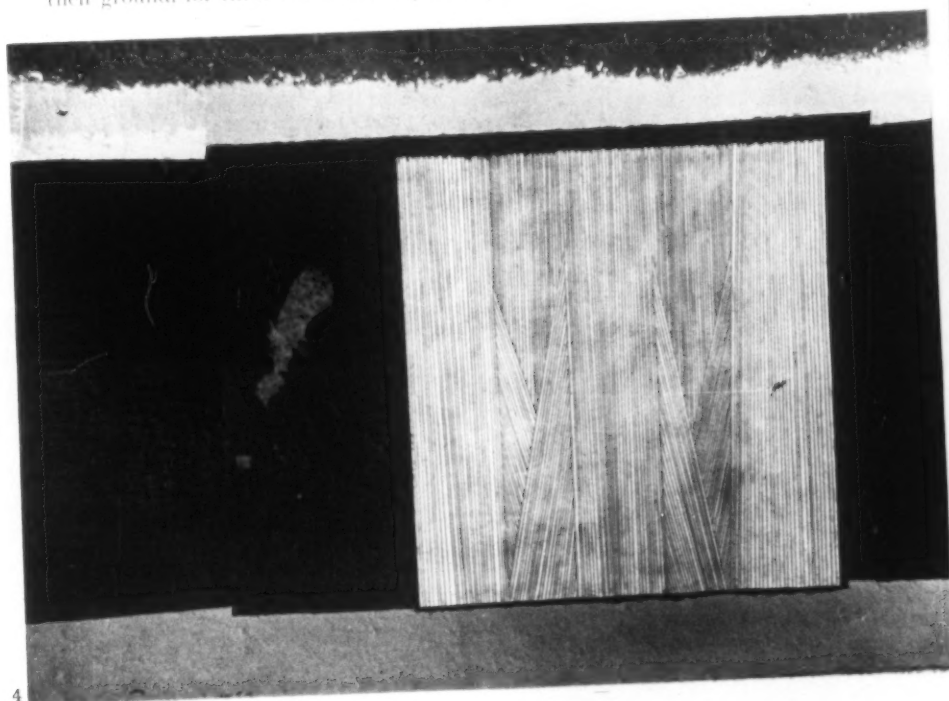


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'Interior,' 5. It is, I believe, a 'still-life portrait' of the composer Markevitch and his mother. The composer's body is a net bag filled with vegetables, and his mother's is an armchair.

Brassai's splendid photographs of anonymous drawings scratched on walls make an interesting supplement to the art of the instinctive gesture as practised by painters like Dubuffet. The examples in this collection usually arise from holes which are already in the wall and which suggest eyes to the unknown embellishers. So most of the images are 'heads,' 6, but there are also hanged men, and hearts, sometimes pierced by a dagger, and one lovingly marked-out 'femme' with a sex like a prickly pear. Brassai says, in his Parisian avant-garde way, that 'they reach the heart of the burning problems of our age.'

Robert Melville



4

CRITICISM

BACKYARD MENTALITY

The Warburg Institute, the most recent of Adams, Holden & Pearson's additions to the University of London's Bloomsbury precinct, is now occupied. The south range is still missing, but the building can be judged securely in its present state. It is a depressing building. That the



- 1, the Warburg Institute from the west.
- 2, the Senate House.
- 3, white glazed brick back walls at the Warburg Institute.
- 4, the School of Oriental Studies on the left and Birkbeck College on the right, with the boiler house roof forming a podium in between.
- 5, a closer view of the podium.
- 6, Birkbeck College from the east.



façades are as non-committal and as tamely articulated as those of Birkbeck College and the Students' Union was perhaps to be expected. That the façade accents, the familiar stone-framing and the little balcony railings of certain windows centre, left and right, have no connection whatever with the accents of the plan was also to be expected. That the only monumental room inside, the reading room, is divided along its centre by six big timber-sheathed round pillars and the book cases on one side of that division are in no way connected with or set off against them may also cause no surprise. But that of the six pillars five are in line and the sixth is out of true by over two feet must be a source of acute spiritual discomfort to those who have to sit and work looking at this accident in planning.

However, it is a worse accident than this which causes this note to be written. The Warburg Institute, 1, is designed round a backyard about fifty by fifty-five feet in size and surrounded for the time being on three sides, but in the end on all four, by walls over eighty feet high. The architect used white glazed brick to make his backyard lighter, 3—but why a backyard years after open planning has become the accepted practice for schools, for office buildings, for hospitals? What was wrong with open planning? If there is an answer, I don't know it.

There can be no answer to the worst indictment of the whole of the University buildings north of the Senate House, the indictment that in them the same backyard mentality has ruined permanently what ought to have been the chief asset of the university precinct, and moreover, a specifically English asset. Bloomsbury was planned at the beginning of the nineteenth century with a series of squares of different sizes and shapes. They were planted picturesquely, and not formally as had

been those of the eighteenth century. The trees have now matured and set off the buildings to perfection. This relation was given and all that was demanded of the architect was to keep it in terms of modern university buildings and university life. What other major university in the centre of a metropolis could have had that precinctual seclusion?

The plan as finally worked out can only be explained by the fact that Dr. Holden's original scheme had been a long, monumental, south-north spine with the individual institutes projecting from it symmetrically like ribs. The Senate House, 2, the University Library and the Institute of Education were built as a first instalment of this scheme. Once it had been dismantled owing to the slump of the 'thirties, the architects must have lost enthusiasm, or else they would have hit on the possibilities of a Bloomsbury planning for the Bloomsbury University. The sort of thing which would have been possible is illustrated to a certain extent by Sir Hugh Casson's and Neville Conder's plans for the new Faculty of Arts at Cambridge.

What we have instead is this. One emerges to the north from the Institute of Education on the axis of the projected spine and might now face Torrington Square. Instead one has in front across the cross axis a platform, some six or seven steps up and with nothing on it, 4, 5. A future war memorial? A future enquiries kiosk?





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7



8

7, 8, two views of the terrace forming the roof to the Junior Common Room of Birkbeck College.

9, the Students' Union, with its recessed centre echoing Birkbeck's.

10, aerial view of the University area, with the precinct envisaged in the County of London plan indicated by the dotted line, and, outlined in white, the Warburg Institute and Students' Union, completed since this photograph was taken.

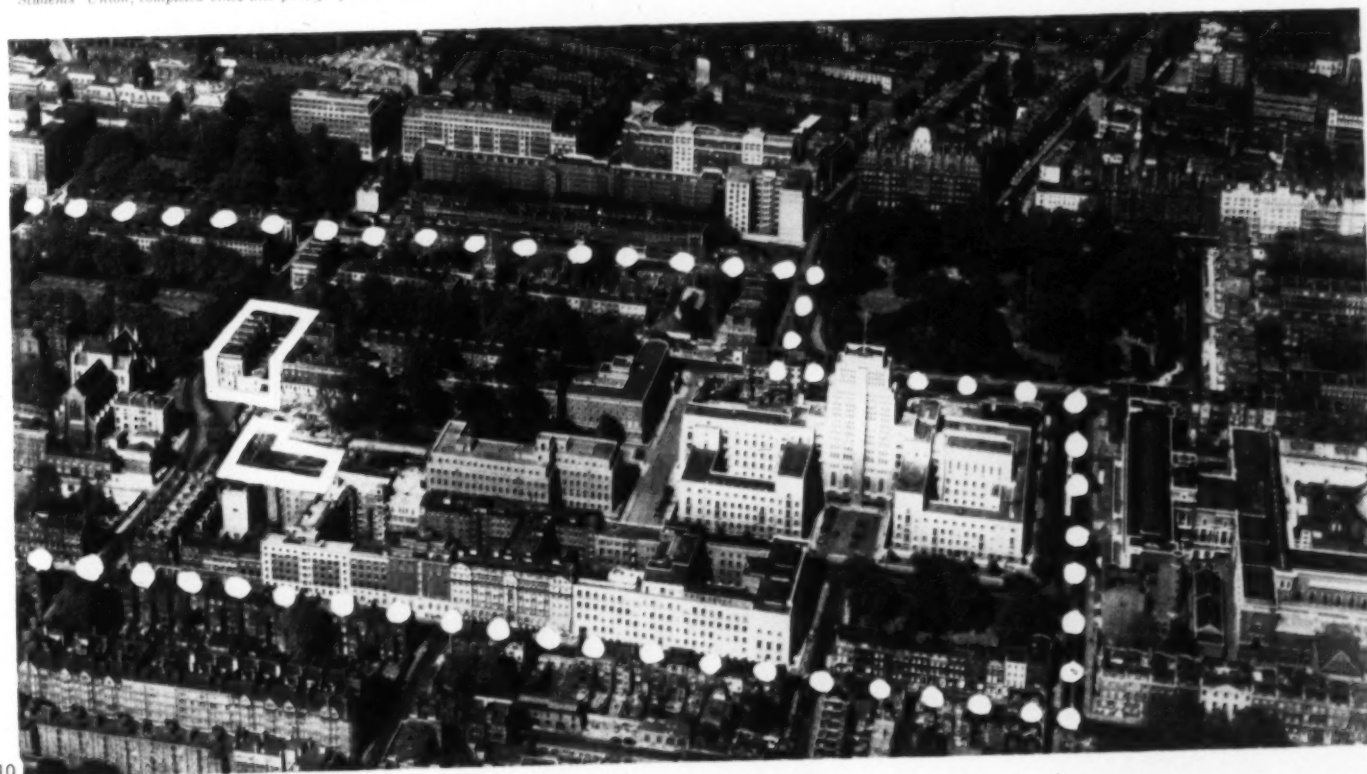


9

No—for all one can see so far is the roof of a boiler plant below ground which just happened in this place. To the right and left are the backsides of the School of Oriental and African Studies and the south block of Birkbeck College, two straight-forward backs, eleven windows wide and four storeys high, and nothing wrong with them except that they are backs. Still—they might be accepted as an introduction to something, if that something did take place. However, nothing of the kind does. To the right the building is not yet erected, but to the left Birkbeck College recedes and then projects again with a north wing. There was a possibility of a composition here, but the architect has instead fitted

wing, projecting from the recessed part and mostly underground, the Junior Common Room, 6. There is a sort of terrace on its roof with four plant pots, 7, 8. Perhaps with a great deal of imagination this depressing platform might still be made a positive value to the square. But there are no indications yet. The fenestration of the storeys above does not promise well. The recessed part is symmetrical except for one limping bay of windows on the right. The north façade of the south range also has the oddest solecisms. Are they deliberate Mannerism? A minor, restrained, English Ronchamp? It is hard to believe, and on the strength of the façades of the buildings can perhaps be ruled out.

Yet it remains an oddity, especially as it



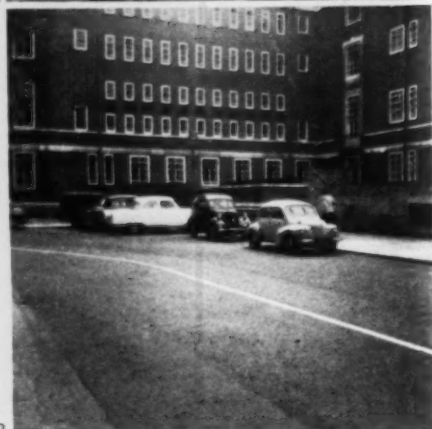
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recurs in the Students' Union, the building north of Birkbeck College. This building first of all stands just too far from Birkbeck College. It breaks the continuity of the enclosure of the square, and the architect or the clients could have fitted something in between, if they had had the feeling for the integrity and importance of the square. Then the Union itself. It has again two projecting wings, a recessed centre, and a half-buried, but much higher exerescence between them, 9, 11, this time containing the Swimming Bath. It is just different enough from the J.C.R. of Birkbeck College not to appear a repeated unit, and not different enough to convey a sense of deliberate variety of composition.

That is the west side of the square. The north side is going to be closed to a certain



11



12

11, the Students' Union.

12, the School of Oriental Studies from Woburn Square.

extent. The remaining part of the east side is not yet rebuilt except for the Warburg Institute at its north end. This has three façades the style of which has already been queried. But from the planning point of view they are rightly façades and as a promontory of the chief university site they do their job. One points down Torrington Place, one up Gordon Square, and the third into Woburn Square. It might have been more logical, according to the principle established by the other buildings, if the main entrance had been placed to the north, but it might well be answered that to place it towards Woburn Square is right according to the very principle advocated here.

For Woburn Square like Torrington Square is some time going to be a precinct surrounded by university buildings. However, alas, the architect has already spoiled his chances of a more satisfying square by making the backside of the School of Oriental Studies face into it from a very important corner. This back wall, west of the (successful) bow towards the Russell Square corner has a symmetrical, if again oddly Mannerist, fenestration in its upper floors, but on the ground floor one window (next to the bow) is distressingly out of step, 12. The result is again the consciousness of standing in a backyard and looking at what ought not to be looked at. Poor students. These are the squares in which they will one day pass their leisure hours.

N.P.

WORLD

A JESUIT FAÇADE IN CHINA

The church of St. Paul at Macau (Portuguese China) has recently been 'discovered' for English readers by Professor C. R. Boxer.¹ An earlier church on the site, begun by the Jesuits in 1594, was burnt in 1600, and the foundation stone of the present structure reads *Virgini magnae Matri Civitas Macaensis libens. Posuit An. 1602*. The walls of the earlier church appear to have escaped destruction in the fire of 1600 and may have been incorporated in the rebuilding; they were made of *taipa*, a mixture of tamped earth and lime which is very strong once it has set.² The architect of the new church was Father Carlo Spinola, S.J. (1564-1622), a member of the famous noble Genoese family of that name. We are told that he was a clever draughtsman;³ and had studied under the famous mathematician, Christopher Clavius. He arrived at Macau in 1600 and left for Japan in 1602. There is no reason to suppose that his plans were subsequently altered,⁴ although the stone façade was not it seems completed until shortly before 1637—being specifically described as the 'New Frontispiece' by Peter Mundy who visited Macau in that year.

St. Paul's was built during Macau's

golden age of economic prosperity (1557-1638), when immense fortunes were being made in the Japan and Manila trades. The decoration of the church was appropriately magnificent. Father João Rodrigues Girão, S.J., wrote in 1627 of 'a thousand marvels and a thousand gallantries made and to be made, which when completed will make the interior of this church more beautiful than all the others in the East.'⁵ Peter Mundy has provided us with details. 'The roofle,' he writes, 'is of the fairest Arche that yett I ever saw to my remembrance, of excellent workemanshippe. Don by the Chinois, Carved in wood, curiously guilt and painted with exquisite collours, as vermillion, azure, ettc. Devided into squares, and att the Joynting of each square greatt roses of Many Folds or leaves one under another, lessening till all end in a Knobbe; neare a yard Diameter the Broadest, and a yard perpendicular to the Knobbe standing from the roofle Downeward.'⁶

Peter Mundy's description is particularly valuable because the church was burnt to the ground in 1835. In this fire there perished many precious relics, notably part of an arm of St. Francis Xavier and the remains of several martyrs from Japan and Cochin China. Likewise destroyed were altar pieces by the Japanese Jesuit painter Jacobo Niwa (1579-1638) including one of the Eleven Thousand Virgins.⁷ Only the massive granite façade survived, and it has since stood isolated without any support or maintenance. It crowns the summit of a hill, the magnificent approach stairway, of six flights each of twelve steps, emphasizing its ruined grandeur.

The façade of St. Paul's is the unique example of large scale use by the Jesuits of pictorial art on the exterior of a church for the representation of the Christian message. This was fully in accordance with Tridentine precepts, typically involving a return to mediaeval practice for missionary ends. The columns of the two upper orders frame panels carved in high relief. Among them are represented Hope, and Fear, Death and Hell, with explanatory inscriptions in Chinese. Such symbolic reliefs were certainly well calculated to arouse curiosity, so often the first step to conversion. But the wealth of sculpture displayed, on a façade already articulated by thirty columns and pierced by six apertures,⁸ is profoundly anti-Classical in spirit. What we have here is one of the most splendid and successful monuments of the architecture of Mannerism.

The Mannerist character of the façade

¹ C. R. Boxer, *Fidalgoes in the Far East*, The Hague, 1948.

² Guerreiro, *Relaçam Annual*, Lisbon, 1605, Book II, Chapter I. (I owe this reference to C. R. Boxer.)

³ L. Pagès, *Histoire de la Religion Chrétienne au Japon*, Paris, 1869, Vol. I, p. 57 Note, and J. Murdock, *History of Japan*, Vol. II, Kobe, 1903, pp. 625-626 Note. It is of interest that Spinola was a prisoner in England between 1595 and 1598.

⁴ A different view is taken by J. E. McCall ('Early Jesuit Art in the Far East,' *Artibus Asiae*, 1948, Vol. XI, Chapter IV, p. 66).

⁵ A. Bailão, *Carta Anna da Vice-Provincia do Japão*, Coimbra, 1933, p. xv. (I owe this reference to C. R. Boxer).

⁶ Quoted by C. R. Boxer, *op. cit.*, p. 125 from *Travels of Peter Mundy*, London (Hakluyt Society), Vol. III, Part I, pp. 162-163.

⁷ J. E. McCall, *op. cit.*, pp. 51-56.

⁸ The windows appear to have been originally rectangular.

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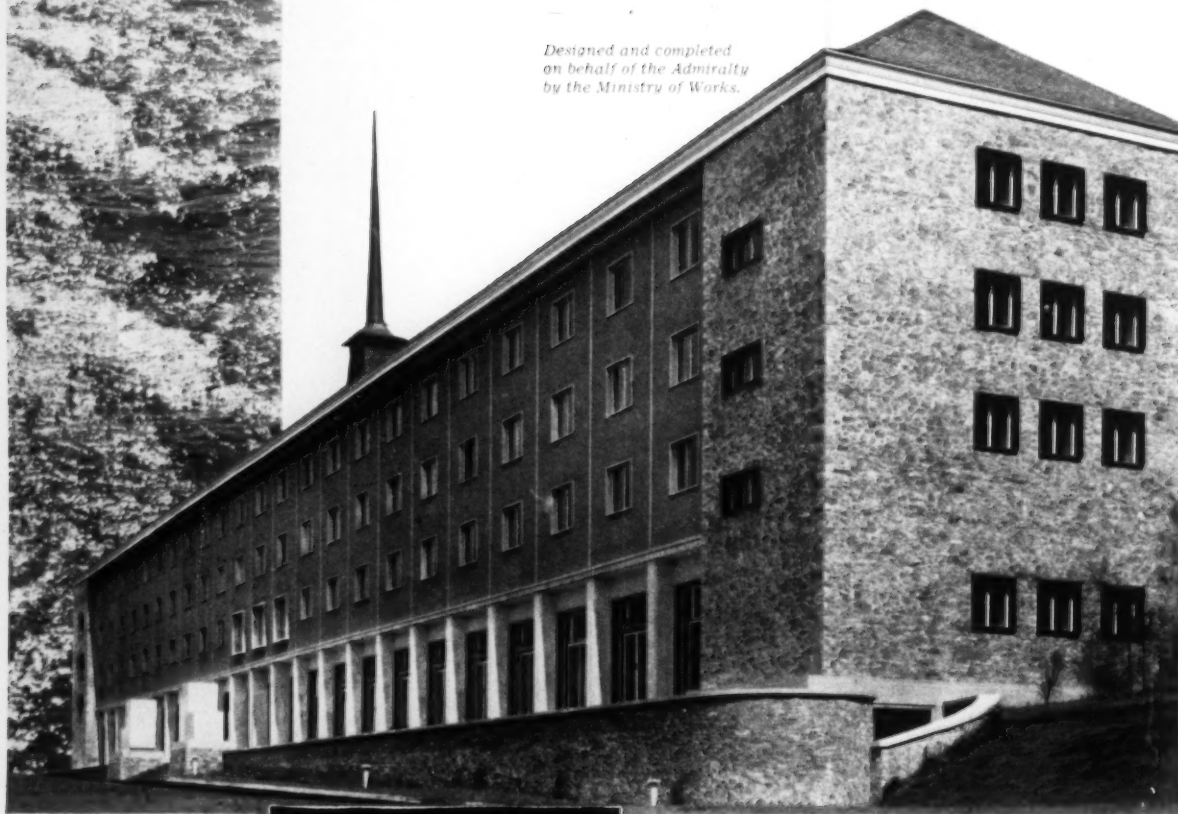
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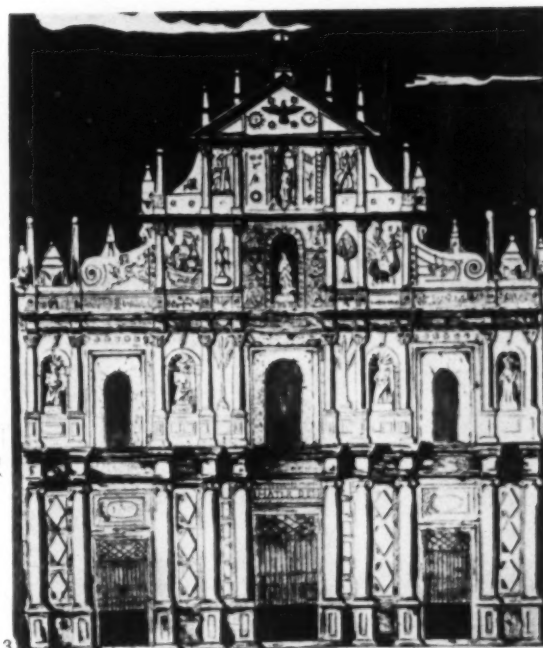
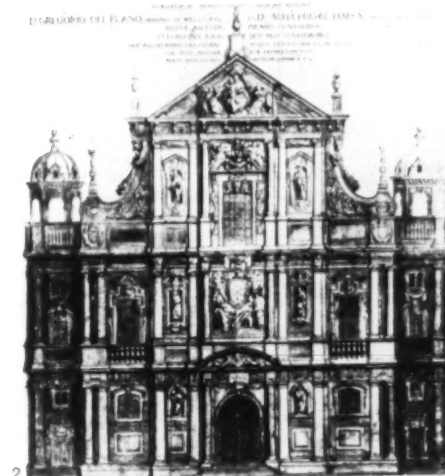
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1 and 2, the Gesù, Rome, of two storeys, and the Jesuit church in Antwerp, with three storeys, and a more complex organization of the facade—stages in the development toward the exaggerated mannerist height and mannerist intricacy of the Macau version.

3, St. Paul's, Macau, by Father Carlo Spinola S.J., completed before 1637 and designed before 1602—an extremely advanced mannerist conception in an extremely advanced outpost of the Jesuit campaign to convert the Far East to Christianity.

is clearly evident in the organization of the columns. The outer column of each pair framing the central doorway (and likewise the window above it) is deliberately ambiguous. It can equally well be regarded as framing the central aperture (a function stressed by the pediment when the façade is 'read' from the top downwards) or as part of the lateral composition centred on the side apertures (an interpretation emphasized in the second order by the bronze statues of Jesuit saints⁹ and in the first order by the lozenge rustication). This is an example of *double function*, perhaps the most characteristic symptom of Mannerism in architecture.¹⁰

In the two upper orders interest is strongly concentrated on the bronze statues at the centre (Jesus Christ and the Virgin Mary), whereas in the two lower orders, with voids at the centre, interest tends to be directed outwards, to the sides of the composition. Thus the emphasis shifts from sides to centre whether one 'reads' from the ground up or from top down. This con-

flicting change of rhythm, or *inversion*,¹¹ is strikingly apparent in the third order, which follows the example set by Vignola in the upper storey of his design for the façade of the Gesù at Rome.¹² The bays of the two lower orders at Macau are composed A—b—A, a—B—a, A—b—A. The fourth order obeys the same rhythm, but with a—B—a only. The third order on the other hand presents a conflicting arrangement, viz. A—a—B—a—A; though the plinths (if those of the lateral obelisks are included) repeat the previous articulation A—b—A, a—B—a, A—b—A. The conflict of rhythms occurs, therefore, actually within the third order itself, between the zone of the columns on the one hand and the zone of the plinths on the other. The fourth order exhibits yet another Mannerist feature, namely an *interpenetration* of levels between the obelisks raised on plinths and the columns without them.

Finally, there should be noted the use, throughout the façade, of freestanding columns instead of either engaged columns or pilasters. Such detached columns are non-functional because they have nothing to support except the entablature which projects over them. The play of light and

shade is greatly enhanced and the conflict set up between wall and order is characteristically Mannerist. But it is worth remarking that this was no new invention; a similar use of freestanding columns appears in Roman triumphal arches from the time of Hadrian.¹³ Like so much else in the architecture of Mannerism precedents may be discovered in Roman practice from the second century A.D.

John Bury

¹³ Curtis, 'Roman Monumental Arches,' *Supplementary Papers of the American School of Classical Studies in Rome*, II, 1908, p. 55.



4, a provincial variant of Macau's magnificence, the seventeenth-century facade on the 'Syrian' church at Candenad, near Cochin in south India.

⁹ C. A. Montalto de Jesus (*Historic Macao*, Hongkong, 1902, pp. 49-50) observes that the statues were 'probably cast at Bocarro's gun-foundry, then thriving at Macao.' He also relates the tradition that the artisans were Japanese Christians, which is, however, according to C. R. Boxer, unlikely to be true. The niches are inscribed, from left to right: B. RC^o B. (Blessed Francis Borgia); S. IGNA. (St. Ignatius); S.RC^o X. (St. Francis Xavier); B. LVIS G. (Blessed Aloysius Gonzaga).

¹⁰ R. Wittkower, 'Michelangelo's Biblioteca Laurenziana,' *The Art Bulletin*, Vol. XVI, 1934.

¹¹ R. Wittkower, *op. cit.*

¹² N. Pevsner, 'The Architecture of Mannerism,' *The Mint*, Vol. I, London, 1946, p. 132.

SKILL

METAL FINISHES PART II

by John Sharp

Last month John Sharp described the different processes which can be applied to metal to give a finish, including in his survey both those which are mechanical in their effects, such as blast cleaning, pickling and polishing and those which make some addition to the finished surface. This month he ends his account by taking each metal in turn and by describing the finishes proper to each.

When we come to consider the different finishing treatments which can be applied to each metal, we notice at once the disproportionate amount of attention which has been given to steel by metallurgists. This has happened quite simply because steel is at once the cheapest and the strongest metal and the one most susceptible to corrosion; the metal, therefore, which is most in need of an applied finish. Another point which ought, perhaps, to be made at the outset, is that cost varies broadly in proportion to the number of processes which a finish requires and that there is a very large difference between, say, the plating finishes, which are used primarily for hardware and the various mass production processes, which have been evolved for protecting structural components. Since, however, hardware objects are small in themselves, are of great effect in a building and represent so small a proportion of a building's cost, this is one of the rare respects in which only the best is economical. If, for instance, a chrome finish is wanted on brass it is essential that there should be a plating of nickel between. A more expensive alternative (but, in the writer's view, well worth the money) is a finish in one of the nickel alloys, such as are sometimes described as nickel silver or German silver or white metal.

It is, however, in the sphere of the protective coatings to structural metals that the greatest advances have been made in late years. Here it is important for architects to realize that certain finishes which may sound much the same as some which they are familiar with of old (and do not greatly respect) are in fact much better. Cases in point (which will all be discussed below) are continuous strip galvanizing on steel which is a very different proposition to 'galvanized iron' and the coating of steel sheet with electro-deposited zinc and with p.v.c.

The scheme of this article is to take each metal in turn and to describe under each the finishes which it can take, but limiting ourselves to what are described in the first article as 'Additive' treatments. For the mechanical finishes we must refer readers to the first article.

STEEL

Steel is at once the most widely used metal, and the one least resistant to corrosion. In consequence of this it cannot, except in the case of special corrosion resistant alloys (e.g. stainless steel), be used without a protective coating of some sort.

Chemical and Heat Treatments

Phosphate Coatings: Apart from being widely used to give a limited protection to springs, washers and small

screws, phosphate coatings are applied to many fabricated articles, including such large things as motor cars, before the application of the finishing paints. There are two advantages in these pre-treatment processes—firstly, the coating is in granular form and gives a good mechanical key, and secondly, the spread of rust under the coating caused by any damage, is prevented. There are three commercial processes: **Parkerizing** uses an acid manganese solution that gives a rather coarse grained finish. **Granodizing** and **Bonderizing** use a zinc acid solution and give a much finer grain. The solutions are generally used in a dipping bath, but the zinc acids are also spray applied, wherewith a particularly fine grain can be achieved, which is suitable for use under high gloss paint surfaces.

In the case of springs, washers, etc., which are probably destined to be used under lubricated conditions, a phosphate coat is applied to give a light protection, and give a porous body for a protective film of oil, before installation. The coating is usually dyed blue or black, and must be oiled regularly to remain effective.

Some dyed phosphate coatings can be used internally under controlled atmospheric conditions.

Boxer Barff process: This is a process which should be mentioned here though in practice it is only used to give protection to the insides of boilers. A thick oxide layer is built up by heating to 800°C in an atmosphere, first of superheated steam, and then of producer gas. The resultant oxide has the same coefficient of expansion as steel and is very tenacious.

Interference Colouring: There are several ways of producing coloured steel surfaces. None of them gives protection against corrosion, and all must either be continuously wiped with oil or else lacquered. The most important and the most interesting process is known as 'interference' or 'temper' colouring. These names together describe the process. Steel when heated forms a transparent layer of oxide which is thinner or thicker according to the degree of heating. Light penetrates this layer, strikes the steel behind and is reflected back. The refraction caused by passing through the thickness of the oxide produces the colour: a thin layer of oxide giving a light straw and a thick layer a dark blue. To obtain even colouring a uniform temperature must be achieved, which makes the process unsuitable for anything but small objects. The most familiar use is in gun barrel colouring. The steel is first rubbed with oil or tallow, then heated, which induces a thick coating to form: to increase the thickness, the process may be repeated.

Chemical Colouring: There are several processes for colouring steel surfaces though none of them gives a complete protection against corrosion. The best is undoubtedly that known as 'Black No. 2.' It is a penetrating blackening that does not add to the metal thickness, and for this reason it is used on such things as precision instruments. The surface is finally treated with lanolin to prevent corrosion. The exposure life will depend solely on the strength of lanolin used. If the lanolin is periodically renewed or if the object is continually handled, the colour will last indefinitely. If the lanolin is allowed to dry out, however, the surface will quickly corrode.

Zinc Coatings

In recent years there has been considerable development work with zinc coated sheet steel, to overcome its corrosion disadvantages vis a vis non-ferrous sheets, and products now exist which perform as well as them, at a lower price. Zinc may be applied by five methods: hot dip galvanizing, continuous strip galvanizing, electro-plating, spraying, and sherardizing.

Hot Dip Galvanizing: Hot dip galvanizing has been in use for many years, both for unworked sheet, and for fabricated articles such as buckets, dustbins, etc. The coating on these articles tends to vary in thickness, and in some instances can be quite crude. In architecture the best known applications are for metal windows and corrugated sheeting. Exposed structural steel is also hot dipped, there being plant for handling quite large RSJ sections. However, due to the slow corrosion of the zinc, it is not advisable to leave the coating unpainted for long, the life of the average coating thickness varying from twenty-five years in Southern England to five in the industrial North. Where zinc coatings are to be painted, the primer should either be zinc chromate, or preferably calcium plumbate, the latter not requiring any etching or pre-treatment process for the zinc.

Continuous Strip Galvanizing: The old hot dipping processes, as applied to sheet steel, produced a thick layer of alloy between the metals, and this caused the zinc to flake off when the sheets were seriously deformed, the gradual curves of corrugated iron being the maximum that could be achieved. Recently continuous strip galvanizing has been developed which produces a thinner coating with a smaller layer of alloy and a much better bond. This process involves the galvanizing of the metal in sheet form, i.e. before fabrication. Sheet galvanizing in this way is capable of withstanding severe working, such as cold rolling, and, in

gauges under $\frac{1}{8}$ inch, the cut edges are protected under normal conditions by the preferential corrosion characteristics of zinc. Amongst the many uses are interlocking corrugated sheeting and cold rolled sections.

Electro-plating: Where sheet steel is produced for fabrication purposes, the final rolling produces quite a good surface that is quickly spoiled by corrosion. An increasing quantity of strip steel is now being produced under the names of Zintec and Mefco, with a thin coating of electro-deposited zinc, which is designed to prevent rusting during transit and storage, both before and after fabrication. By eliminating the necessity for oiling, and cutting down the pre-finishing processes, much better finishes are possible, and this sheet is widely used for making kitchen equipment, light fittings, etc. 1, 2. The zinc coating, which has a rather pleasant dark grey colour, also prevents rusting if the final finish is broken in any way. This sheeting is capable of withstanding all the normal deformation in sheet metal-work, and can be spot welded. Clearly it should not be specified indiscriminately for all sheet metal-works, but where high finish is required, the small extra initial cost will be more than covered by the saving in finishing processes. Electro-plating is also used for small items of ironmongery such as hinges, and is referred to as 'brilliant galvanizing.' Here again the main advantage is that the article does not deteriorate in any way before paint is applied.

Zinc spraying: This method is used for structural steelwork or large fabrications such as tanks, which cannot otherwise be treated. As shown in Part I, the surface has a regular, fine pattern, and forms an excellent body surface for paint.

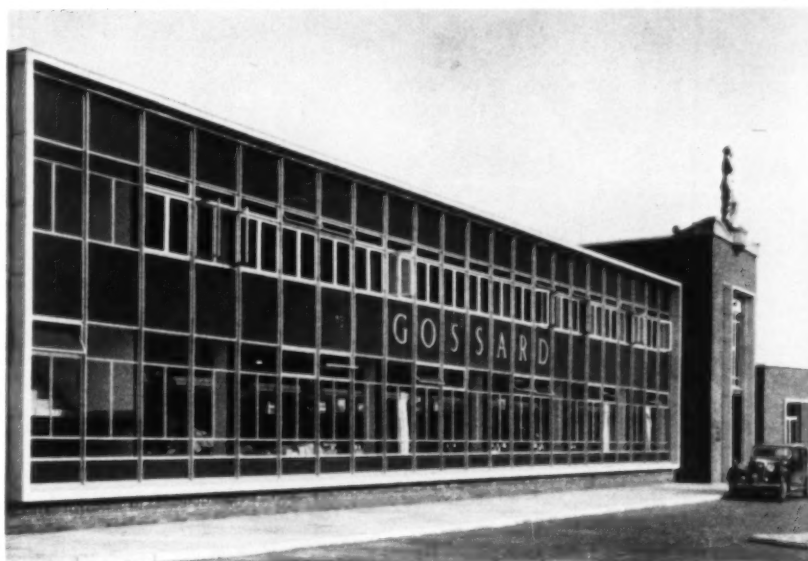
Sherardizing: This is a process applied to small articles such as screws and bolts; they are put into a revolving metal drum containing zinc dust, and heated. The resultant coating is in the form of a zinc-iron alloy. It is used where a corrosive resistant coating is required but only a small dimensional change is permissible. The surface has a powdery white appearance.

Aluminium Coatings

Aluminium can be applied to steel by three processes: hot dipping, spraying, and calorizing.

Hot dipping: This process is used industrially where a protective coating that can resist high temperatures is required. It is capable of resisting up to 700°C without scaling, and is used for such things as engine exhausts and domestic heating appliances. The development of continuous

[continued on page 415]



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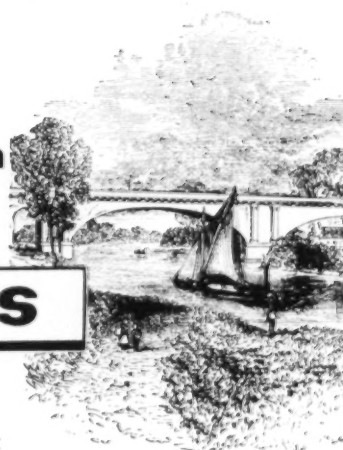


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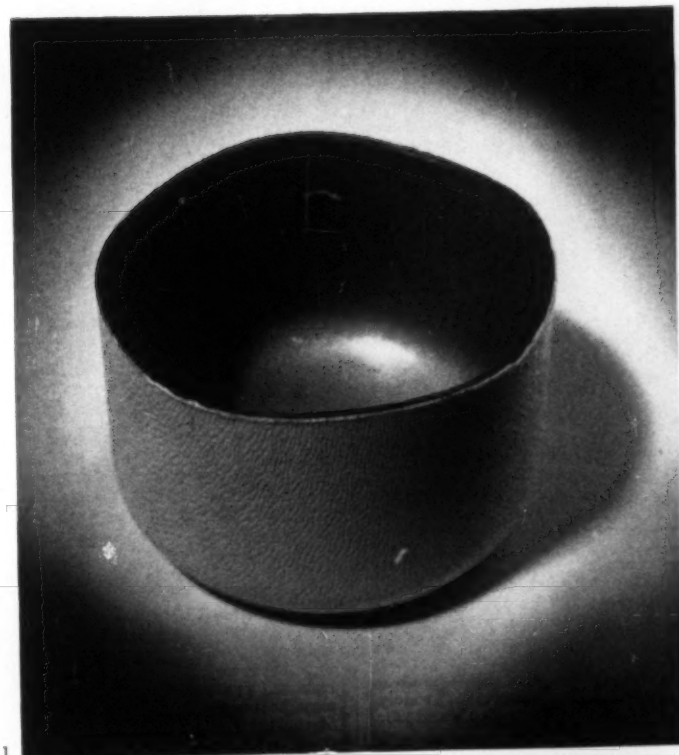


Isambard Brunel's bridge over the Thames at Taplow—the widest brick arches ever constructed—was doomed, so the cynics prophesied, to early collapse, but one hundred and twenty years later it remains a monument, and a hard-working one at that, to the ingenuity and understanding he brought to his material.

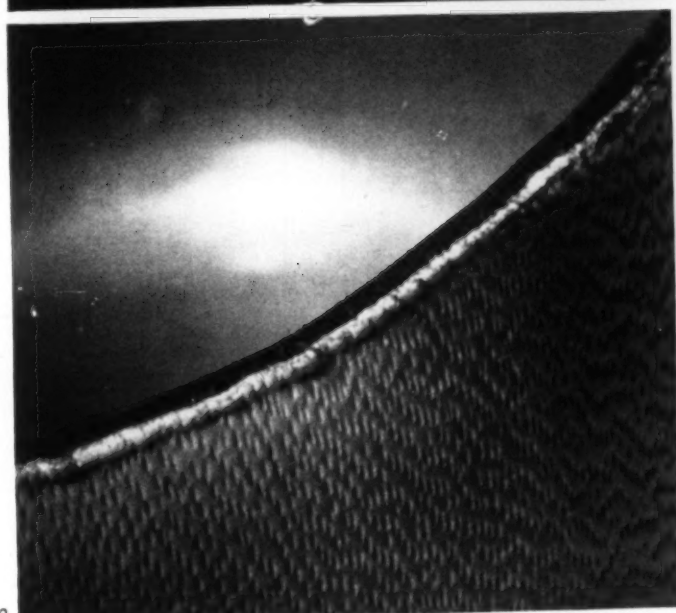
Kee Klamps for tubular construction, the product of inventive minds at Reading, provide just those possibilities of construction that would have delighted the great Chief Engineer of the Great Western Railway.

Kee Klamp Engineers, qualified to advise, are freely available to discuss applications of this system.

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1



2

1, end section of a steel pressing showing, on the inside, one of the new electro-plating finishes and, on the outside, a P.V.C. coating.
2, the above enlarged by ten.

continued from page 414]

hot dip sheeting, though technically easy and effective on the flat, is limited by a brittle alloy layer which, unless there is considerable cold working, causes the aluminium to flake off under deformation.

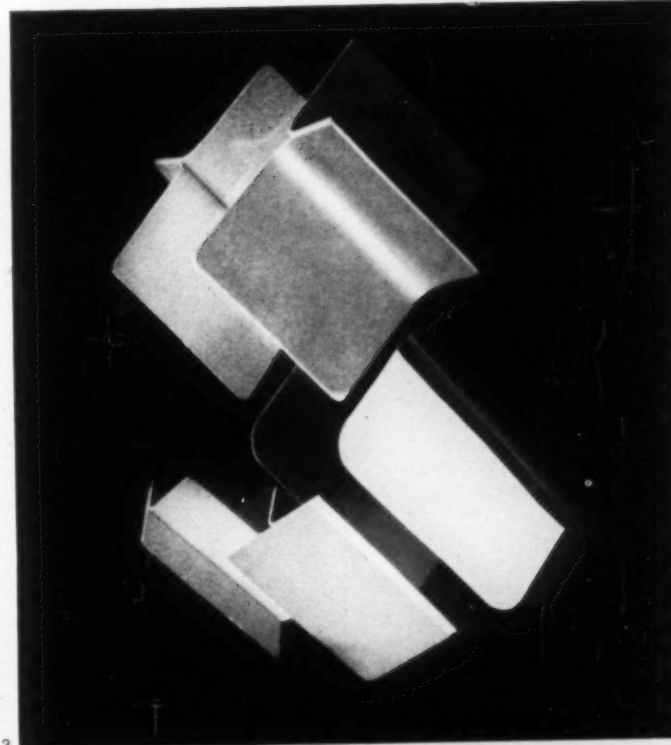
Spraying: In heavily polluted atmospheres aluminium spray can be applied to steelwork instead of zinc, giving a life of approximately twenty-five years. A disadvantage of this method, however, is that aluminium does not give the same anodic protection as zinc so that, if the surface is damaged, it will hasten and not inhibit the rusting of the steel.

Calorizing: This is the term used for a process which is similar in its nature and effect as sherardizing, but which employs aluminium dust in-

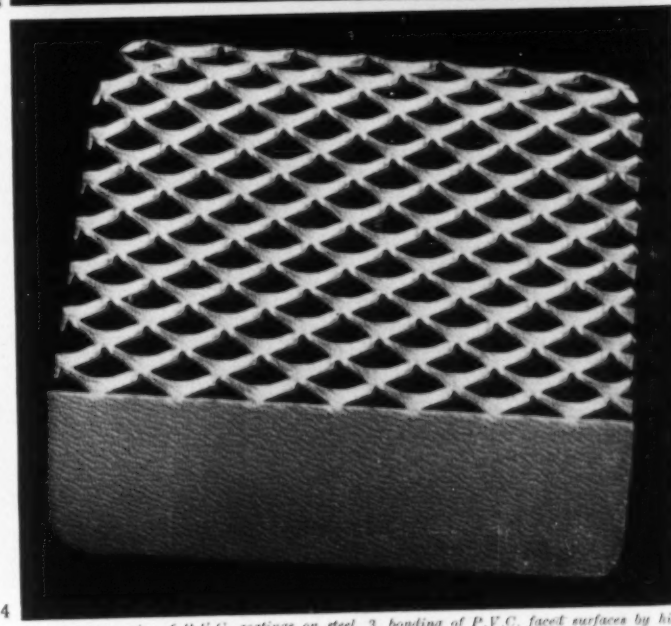
stead of zinc. The plant is run at a much higher temperature and the resultant coating will withstand temperatures up to 700°C.

Coatings of other Metals

The most important of the other metals which can be applied to steel are chromium, cadmium, copper and nickel. These are all applied by the plating process which was described in the first article. Cadmium plating has a high protective value but is expensive. Chromium, if cleaned, will last for ever, but requires a fairly elaborate plating system underneath (i.e. brass plus nickel) to be really effective. Nickel may be used by itself, either as dull, nickel plate or with chemical additions as 'bright' nickel plate; or it may be used as a plating layer for chromium. Likewise copper (or brass)



3



4

3 and 4, examples of P.V.C. coatings on steel. 3, bonding of P.V.C. facet surfaces by high frequency welding.
4, metal lath showing the close bond of the P.V.C. to the steel.

may be used as a plating layer for nickel or by itself. One use of copper which should be noted is to provide a metallic colour, for copper is easier to colour than steel.

Organic Coatings

Paint: In applying a paint to steel it is important to remember that it will not prevent corrosion on its own. No paint film is impervious to moisture and air, and unless there is additional protection, corrosion takes place underneath the coating. One of the phosphate coatings is generally used where the size of the object will permit it to be processed. Otherwise a primer should be used that is rich in zinc: this will give anodic protection to the steel, that is, prevent the electro-chemical process involved in corrosion from taking place. Varnishes are largely used

as coatings, having been developed to such a degree that they can withstand the deformation inevitable during fabrication processes.

Plastic Coatings

Perhaps the most interesting development in coatings are those involving polyvinyl chloride films. The cleaned steel strip is roller coated with a film of adhesive and passed through an oven, after which the P.V.C. film is applied and allowed to cool. The laminate can be fabricated by any of the normal sheet working processes without breaking bond. The uncoated side of the sheet is either bonderized or preferably zinc plated 1, 2. This gives a completely sealed steel sheet, as, when under $\frac{1}{8}$ inch thick, the cut edges are protected by the zinc. It has been found that any normal sheet metal

SKILL

working can be done, and that the plastic coating can be less destructive than uncoated sheet to metal dies. By slight modification to existing plant it is possible to spot weld to the bonderized or zinc plated side without damage to the P.V.C. Alternatively two P.V.C. surfaces can be bonded together to give a sealed if not a structural joint; or the P.V.C. can be removed to allow normal spot welding to be done. The plastic covering is in five standard colours, but may be of any colour or pattern provided sufficient quantity is used. By careful design it is possible to eliminate virtually all finishing processes after the sheet metalwork has been completed 3, 4.

In the short time that this product has been on the market, it has been applied in many industries. In building it has been used in curtain wall panelling, partitioning, and ducting; this latter is particularly useful where extract ducting has to deal with corrosive gases. The possibilities seem limitless, an example being expanded metal made of the coated sheet, and then nickel plated on tin back, 4. The P.V.C. is unaffected by the plating.

Another P.V.C. coating, applicable to free end rods and tubes, is a shrunk-on sleeving. The sleeving is supplied in a number of patterns and colours in an expanded form. When placed over the rod and heated it shrinks by up to 40 per cent, gripping the core, and taking up any special sections on it.

There are a number of other ways of applying plastic coatings by spray, dip, or bond.

Vitreous Enamel

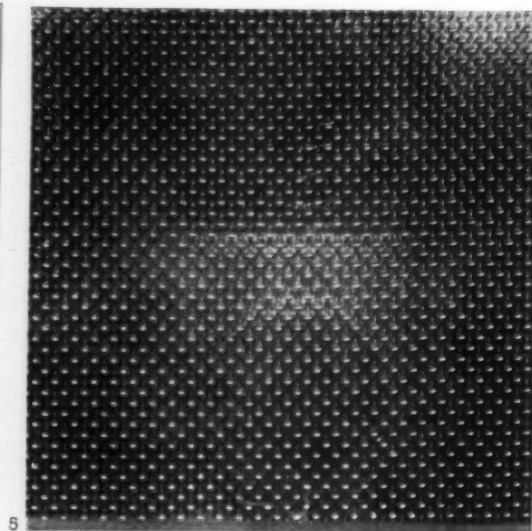
This is a well-established process that has recently found a new lease of life in curtain wall panels. Its principal advantage over any other material is wonderful weathering properties combined with virtual indestructibility (apart from malicious damage), and unlimited colour range. The panels, which at present may be up to 6 feet by 4 feet are first primed all over with base coating and fired, sprayed with the final colour and fired again. Several coatings and colours can be applied on each other. The firing takes place at between 700°C and 800°C and care has to be taken in the design of the panels to eliminate distortion: at present very narrow panels cannot be made. For curtain walling, panels are made up into a variety of insulation sandwiches of various thicknesses and edge details. The surface can be varied from a high gloss to a dull matt.

ALUMINIUM

Though pure aluminium is a highly reactive metal, it forms an oxide layer on the surface, which acts as a barrier to further corrosion. Aluminium copper alloys, though structurally stronger, do not have so great a resistance to corrosion, and where possible are sandwiched in the rolling process between two thinner layers of pure aluminium which give anodic protection. During the rolling process good surfaces can be obtained, without scale on them, and by using special final rollers regular patterns of a mixture of rough and smooth surfaces can be produced 5, 6. Alternatively, a purposely roughened surface that will not show small damage marks is available with an anodized finish.

Chemical treatments

There are no heat treatments applicable to aluminium and chemical treatments fall into three categories:



5 and 6, two patterns (to full size) applied to aluminium sheet in the rolling mill.

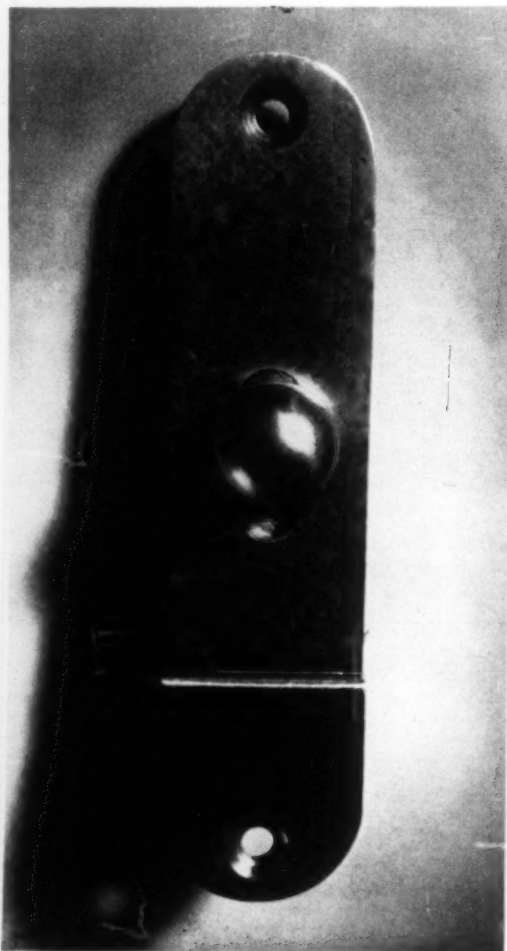
the oxy-chromate process, pyromenizing, and anodizing.

Oxy-chromate Process: Both this process and pyromenizing, which follows, are primarily pre treatments for painting. The oxy-chromate finish, which can be applied by brush, spray or dip and which is referred to in the trade as Alerom, can be obtained in two versions. One has a golden colour which bleaches on exposure and the other has a light green colour which is permanent. The latter is evidently a finish in its own right and may be seen,

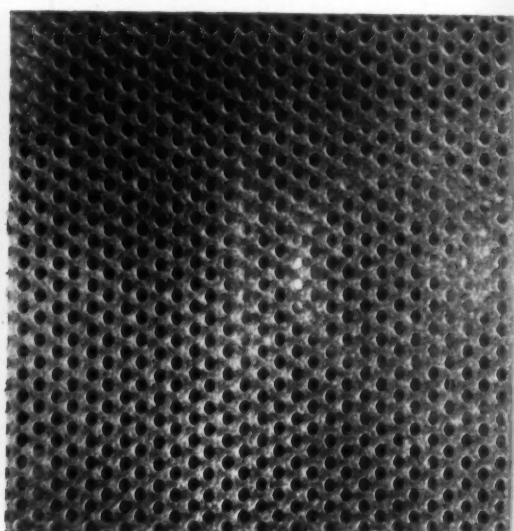
for instance, on aluminium siding. **Pyromenizing:** This is in effect a phosphating process. It can be applied by brush, spray or dip and gives a permanent grey colouring which is often striated.

Anodizing: This process is widely used, for cast, extruded, and for sheet aluminium. A very wide range of colours is available for indoor use, but only a very few are colour fast for external use. Recently the Aluminium Development Association issued a revision to its colour fast recommendation. There are only six recommended dyes: two inorganic pigments to produce gold and bronze, and four organic dyes for yellow, blue, green and black. As yet there is no recommended red. On 5 per cent silicon alloys these colours are all grey modified. Colour matching is not always easy, especially where a component may be made from cast, rolled and extruded forms, even though the same alloy is used. Frequently a cast surface will show a crystal structure on anodizing, 7.

For exposed conditions a film of .001 inch is recommended, but on shopfronts, which are cleaned regularly, .0006 in. will suffice. Cleaning of anodizing is important, as, if dirt is allowed to accumulate, the film is liable to break down. Where cleaning is not possible, a clear lacquer should be applied, though this will need periodic renewal. Where anodizing is to be installed in a building before completion, it should be protected by a short-life lacquer or strippable coating from accidental damage and mortar droppings.



7, each bolt in anodized aluminium showing the differing texture of the finger knob which is cast, and the plate which is from rolled sheet.



Vitreous Enamelling

An alternative to anodizing for curtain wall panelling is vitreous enamelling. The process is identical to that used for steel panels, the resultant panel being lighter. It may be possible to take advantage of the better corrosion resistance of the aluminium to jig the backs of very narrow panels to prevent distortion during firing.

COPPER, BRASS AND BRONZE

Since sulphur compounds are the main corrosive mediums on copper, this is a fairly stable metal in a clear atmosphere. A freshly polished surface will remain bright in non-sulphurous air for some time. Where sulphur compounds occur, as in smoky atmospheres, the bright surface is quickly covered by a thick layer of tarnish, which gives a brown colour, gradually darkening to black, and finally turning green—the familiar green patina of copper roofs. It is possible to obtain any of these corrosive colours by means of dipped or brushed solutions, for which there are a number of recipes. When the required colour is obtained, the metal is washed, dried and then lacquered; the life of the colour depending on the quality of the lacquers. It is important to notice, however, that the Copper Development Association do not advise artificial weathering in any form.

Brass is an alloy of zinc and copper and from a colouring point of view has similar properties to copper. There are a number of recipes for obtaining colour on brass, the value of which depends on the particular alloy of brass involved; suffice it to say that almost any colour, from yellow, through red, brown and green to black, can be obtained. They must all be protected with a suitable lacquer. Brass provides the classic base for plating, the most serviceable version being chromium with a plating of nickel in between.

Bronze is an alloy of copper and tin: it has a high natural resistance to corrosion, and where it can be regularly cleaned, as in shopfronts, only a coating of wax is required. On heating bronze a particularly fine interference coloured oxide is formed that has a dark bluish iridescent colour. This is known as 'bronze metal Antique'; there are a number of imitation BMA finishes that are used on brass castings—none of them very pleasant.

Construction in progress



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THE INDUSTRY

Correspondence

To the Editors.

SIRS.—We were interested to read the article in the September issue of THE ARCHITECTURAL REVIEW headed 'Skill,' Suspended Ceilings, Part 2, by Mr. Peter Matthews.

We wish to point out, however, that there are one or two major errors concerning the Burgess Heated Ceilings on page 204.

Firstly, it is implied that the Burgess Electrically Heated Acoustic Ceiling has not been designed in this country, whereas the design and the whole development of this ceiling, which was the first electric ceiling of its type to be put on the market,

has been carried out over the last few years by our engineers at our head office in Hinckley, Leicestershire.

With reference to 'Water Heated Ceilings,' your article states in the second paragraph:—

'In all three systems, it is important to have a really good contact between the tiles and the heating coils, so that the heat is conducted to the radiating surfaces.'

And again in the fifth paragraph:—

'In the Burgess-Sulzer ceiling, the spring tee bars which hold the tiles are not connected to the heating coils, but must be held firmly against them, and this would seem to call for considerable precision.'

And yet again, dealing with the Burgess-Sulzer ceiling in detail:—

'Hooked rod hangers from the M.S. angles support sinuous heating tubes at 6 in. centres, which must be in contact with the Burgess spring steel tee bars.'

We would like to make it quite clear that in the design of our ceiling there is no direct mechanical contact whatsoever between the coils and

the Burgess ceiling or tee bars, and by intention, therefore, no conduction of heat from the coils to the radiating surfaces. In fact, the whole object was to obtain an even distribution of heat over the whole heated area. There were four main reasons for this:—

Firstly, to prevent hot spots, which would occur at the points of contact and might lead to uneven expansion and consequent buckling of the Burgess tiles.

Secondly, to allow expansion and contraction of the coils, independently of the ceiling which also eliminates buckling of tiles.

Thirdly, to allow the coils to be run in any direction, regardless of the positioning of the tee bars. This makes for far greater flexibility, eliminates the degree of precision on site to which you refer, and in consequence, results in quicker erection.

Fourthly, by having even heat throughout the heating area, to avoid pattern staining which would occur on the heating surface.

One other point which we feel does not do us justice is that the illustration which you give of a Burgess-Sulzer Heated Acoustic Ceiling (Fig. 22), is a drawing of the original design, and is, therefore, somewhat out of date. We no longer use hooked rod hangers or mild steel angles, but, as you will see from the advertisement on the opposite page from your article, channel stirrups and bar, which is considerably simpler and cheaper to install than the original hooked rod hanger system.

It is unfortunate that these errors should have been made, particularly as we would have been delighted to have given every co-operation to

anyone interested in writing an article of this kind.

Yours, etc.,

H. J. K. CAVLEY.

Burgess Products Co. Ltd.

Editor's note: We have received three other letters in the same sense, from Roof and Lining Construction Ltd., from Draftsele Ltd., and from Horace W. Cullum and Co. Ltd.

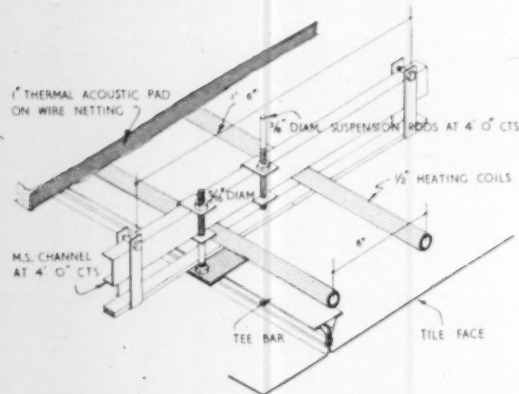
The author of the article replies:

I did not intend to imply that the actual electric heating of the Burgess ceiling was not designed in this country, but I do believe that the tile fixing system, which is similar but not identical to others on the market, is of American origin and very cunning it is too. My comment implied that an entirely British design had apparently reached the same standards of orderly arrangement and ingenuity which are normally associated with American products in this field. Not unnaturally, but evidently wrongly, I assumed from the material supplied to me (a written 'pre-press release' from Burgess Products and a drawing of the out-of-date system supplied by a sub-contractor) that the tee bars of the Burgess-Sulzer water heated ceiling had to be in contact with the heating coils. Since my article went to press I have seen a new catalogue which makes the true situation quite clear, and regret that this was not forwarded to me before publication. I apologize for any disservice this mistake may have done the company.

Gas Units

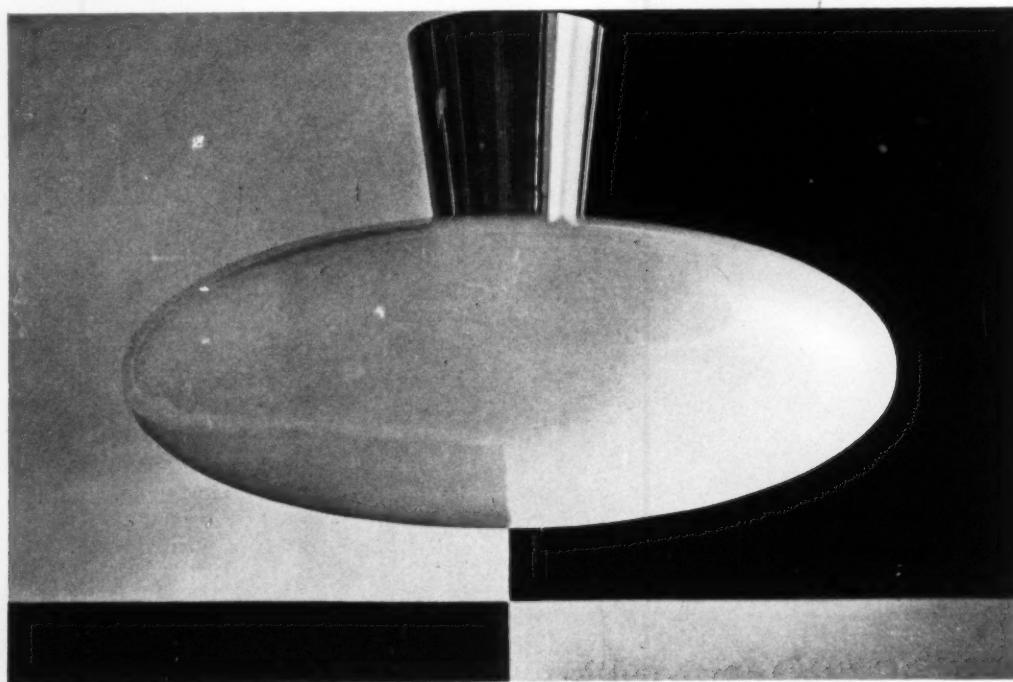
The conversion of coal into heat by gas is more efficient than by electricity—and thus less costly. But

[continued on page 420]



1, corrected drawing of the Burgess Electrically Heated Acoustic Ceiling referred to in the letter.

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continued from page 418]

electricity is cleaner and more flexible to employ. The fatuous competition with itself waged by the nationalized fuel and power industry is a fairly even contest except that gas has the disadvantage of special care over fire danger and ventilation to clear carbon monoxide—especially difficult with overhead heaters. Nevertheless, gas units up to 70,000 BTU per hour input find extensive use and a recent booklet brings the various types together in fairly systematic presentation. Opening pages discuss advantages, limitations, precautions, methods of designing installations, heating characteristics, etc., in a way fairly

sensible for the architect—with tables of output related to area and mounting height.

Part II of the booklet consists of information sheets of seven types of heater, with photographs, dimensions, and sectional drawings of each. The booklet, to BSS size 8½ in. by 5½ in., is produced by *Bratt Colbran Ltd.*, 10 Mortimer Street, W.1.

Laminated Timber

A new staircase at the Building Centre (from ground to basement level) has been made from laminated timber. Two flights cross each other (on section) sharing a common half-way landing. Each flight rests on a



2, the central carriage beam and hardwood treads in the new laminated stairway at the Building Centre.

kind of swan necked cranked central carriage—which the makers, Rainham Timber Engineering, speak of with craftsmanlike pride. Each carriage is made of glued Hemlock lamina—which bend to the shape—in two units joined by plywood to form a box beam. Afrormosia treads and landings are bracketed off to these. Carriages of this shape were used to avoid the 'heavy metal splices' implied by an angular crank in the middle of the carriage and because laminated timber will take higher bending stresses than 'raw' timber. Finish is with a clear sealer on the sanded surface.

Designers: *Cassidy Farrington and Denny and the Rainham Timber Engineering Co. Ltd.*

Wall Convactor

A new undercill convactor heater is on the market. It consists of a steel casing, fixed clear of the floor (for air inlet) with grille outlet at the top, just under the window cill. Continuous finned tubes in the base of the casing form a hot water circuit.

The idea is that the casing would run continuously around the perimeter of (say) an office building, at every floor allowing easy re-arrangement of dividing partitions, which, although the catalogue does not show this, are presumably scribed to the contour of the casing.

There are two depths and four standard heights, the non-standardized lengths being jointed with cover strips. Heat output per foot run may be adjusted by screen plates around the tubes and day-to-day control effected by dampers regulating convection air flow. The rather overcrowded catalogue tables the emission rates for various water temperatures and velocities.

This product illustrates what must be a common manufacturer's dilemma—the conflict between the economic pressure towards standardization and a market still dominated by the purpose-made. It would be interesting to know the effect of this on prices—which the catalogue does not give.

Copperad Ltd., Colnbrook, Slough, Bucks.

Steel Radiators

Pressed steel has lately been gaining on cast iron for radiators—largely because of light weight, sometimes better appearance and, of course, price. The Washington Engineering Co. have now produced a technical leaflet on steel radiators which points out that 'most manufacturers have imitated the shape of the cast iron radiator and only a few have introduced special designs to take advantage of the properties of the steel sheet...'. This sounds like architect's talk, and although the products are not quite so functional looking as this quotation might lead one to expect, they are quite pleasant.

The leaflet touches on matters of thermal emission for various kinds of radiator (with graphs), explains that the development of electric roller resistance welding was the key to economic production and demonstrates how their designs of radiator sections are appropriate to the exigencies of steel pressing. *Washington Engineering Co. Ltd., Washington, Co. Durham.*

The Toilet

At the 1957 Building Exhibition there was a display called 'Clean and Decent'—a history of the British

[continued on page 422]



a book on stability...

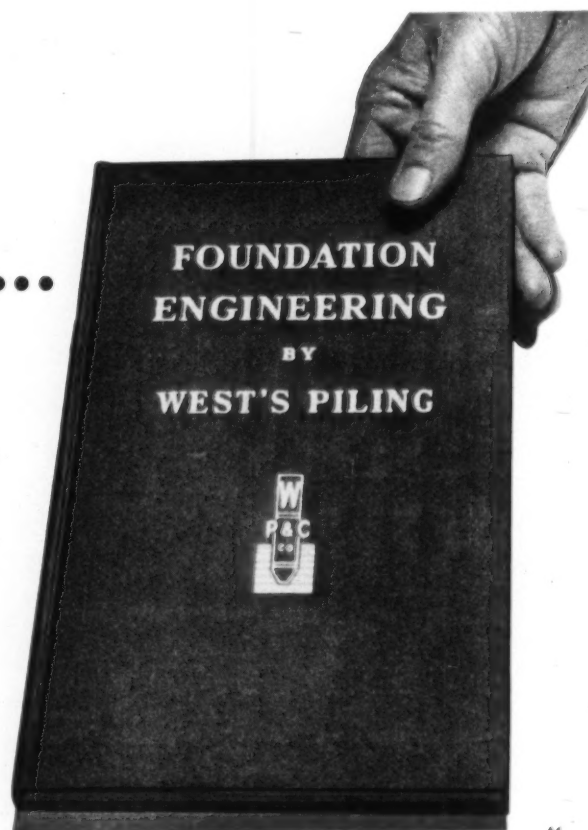
A publication of great value to all who may be concerned with the design of new buildings or extensions, particularly those imposing great weight per unit of area occupied. Dealing in simple terms with the science of soil mechanics and outlining problems associated with the construction of firm foundations, the book also illustrates the application of West's Shell Piling System—a modern mobile method which combines a precast shell with a cast-in-situ core.

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continued from page 420]

bathroom and w.c. Material from the booklet of the same title has now been used in a brochure issued by the British Sanitary Fireclay Association.

It has paragraphs on Roman, Mediaeval and Georgian habits and methods of washing and what the Americans so oddly call 'comfort'—with quaint drawings including the well-known contraptions of Sir John Harrington (1596) and Joseph Bramah (1778)—all rather too brief and inconsecutive to be informative.

The second half of the brochure, headed 'Today,' skirts the fringes of clay technology (with four photographs only), tells us that a terracotta bath found at Knossos was almost exactly the same shape as a modern bath, that the first 'open and exposed' w.c. suite was made in 1885 and claims, without supporting evidence, that ceramic glazed sanitary ware is well designed. It does not answer the old question: why is it that only Victorian or Edwardian w.c.s will discharge their purpose with one pull? The brochure was sponsored by 15 fireclay firms, *British Sanitary Fireclay Association, 57 Great George Street, Leeds 1.*

Fire Protection

The Matthew Hall Group includes more than merely the heating firm—one of its activities is the installation of fire protection systems, which a new and lavish brochure sets out to advertise.

There is a dramatic photograph of a sprinkler head on the point of bursting into action; rather menacing close-ups of control valve gear, dry alarm valves and exhausters, pictures of the way in which a burning oil tank was dealt with in four seconds and

several building interiors. Of technical information that might be of use to architects there is not a murmur. *The Matthew Hall Group of Companies, Dorset Square, N.W.1.*

CONTRACTORS etc

Annex to the Old Vic. Architects: Lyons, Israel & Ellis. **General contractors:** Chas. S. Foster & Son. **Sub-contractors:** Paint frames: W. J. Furse & Co. **Mechanical services:** Young, Austen & Young Ltd. **Electrical services:** Electrical Installations Ltd. **Lift:** Express Lift Co. **Ironmongery:** James Gibbons Ltd. **Aluminium roof:** Frederick Braby & Co. **Fire doors:** Mather & Platt Ltd. **Metal windows:** Crittall Manufacturing Co.

Offices for J. Sainsbury. Architects: Ward & Austin. **Decoration and joinery:** Trollope & Sons. **Partitions:** Bovis Ltd. **Ceilings:** British Hermasol. **Carpets:** Tomkinson's. **Sherwood chairs:** Cintique Chair Co. **Upholstered furniture:** Buoyant Upholstery Co. **J. D. Sainsbury's desk chair:** Hille Furniture. **Typing chairs:** Hille Furniture. **Lighting fittings:** Frederick Thomas & Co. **Desks:** L.M. Furniture Ltd. **Special veneers:** William Mallinson & Sons.

Offices for W. H. Smith. Designers: John Tandy, Lucy Halford and Derek Mills. **Acoustics consultant:** H. R. Humphreys. **Main contractor:** David Esdaile & Co. **Sub-contractors:** Fibrous plaster: David Esdaile & Co.

Heating and supply of Midrae panels: Richard Crittall & Co. **Lighting:** Crompton Parkinson Ltd. **Electrical installation:** James Kilpatrick & Son. **Flooring, carpets:** Carter's (Furnishings). **Rubber:** Rummymede Rubber Co. **Reception screen:** Plyglass Ltd. **Special light fittings in conference room:** Frederick Thomas & Co. **Ironmongery:** Alfred G. Roberts Ltd. **Venetian blinds:** Tidmarsh & Sons. **Veneers (other than furniture):** William Mallinson & Sons. **Special furniture:** Conran Contracts. **Standard furniture:** Conran Furniture; Hille of London; Finnmar Ltd.; Liberty's Contracts. **Fabrics—suppliers:** Frost & Roper; Primavera.

Flats at Regent Square, W.C.1. Architects: Davies and Arnold. **General contractors:** Tersons Ltd. **Sub-contractors:** Piling: Cementation Co. **Balustrading and staircase windows:** Crittall Manufacturing Co. **Lightning conductors:** R. C. Cutting Co. **Electrical installation:** Electric Power Installation Co. **Plumbing:** Ellis (Kensington) Ltd. **Asphalte roofing:** General Asphalte Co. **Lifts:** Marryat and Scott Ltd. **Wall tiling:** B. Finch & Co. **Staircase balustrading:** Light Steelwork (1925) Ltd. **Resinoid flooring:** Haskel Robertson & Co. **Sanitary fittings, fireplace surrounds, ironmongery:** W. N. Froy & Sons. **Fuel hoppers:** B. Finch & Co. **Refuse chute pipes, balcony drainage units:** Broads Manufacturing Co. **Facing bricks:** W. T. Lamb & Sons. **Doors:** Gliksten Doors Ltd.

Miners' Welfare Centre at Bilsthorpe. Architect: Michael Moss. **General contractor:** A. Mason (Contractors) Ltd. **Sub-contractors:** Roofing: The Ruberoid Company. **Metal windows:** Henry

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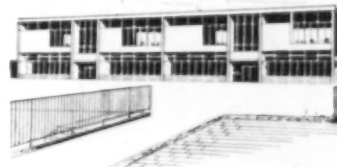
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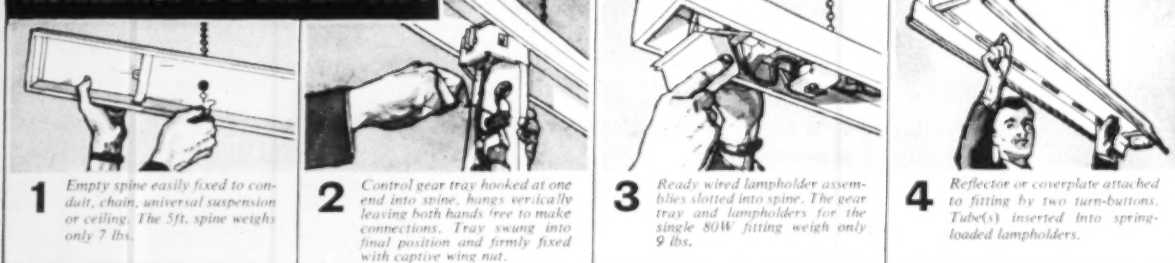
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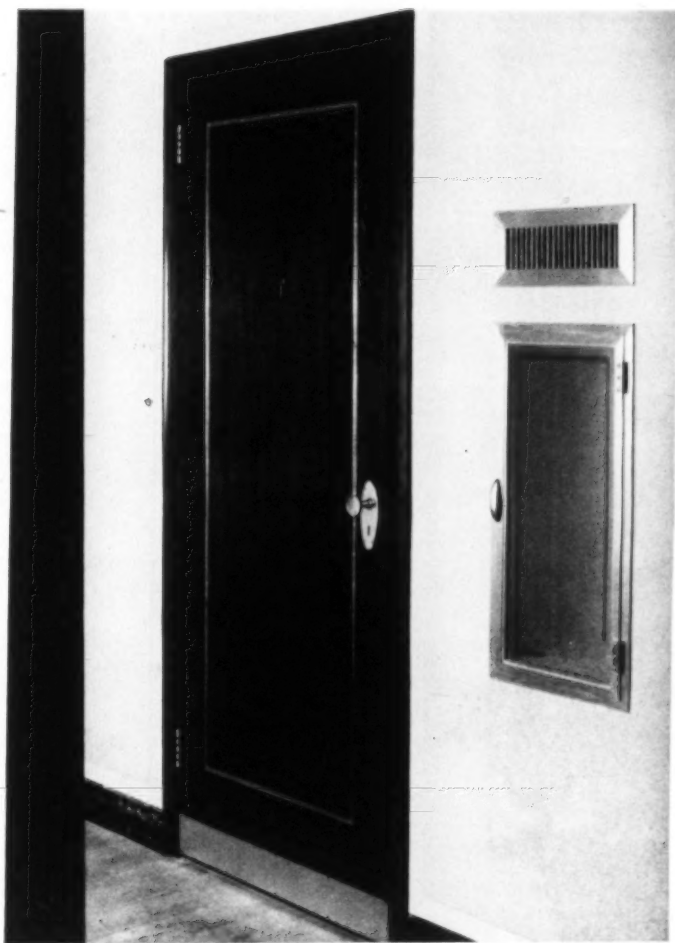
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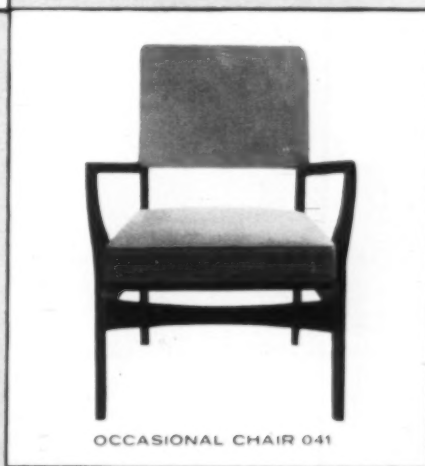


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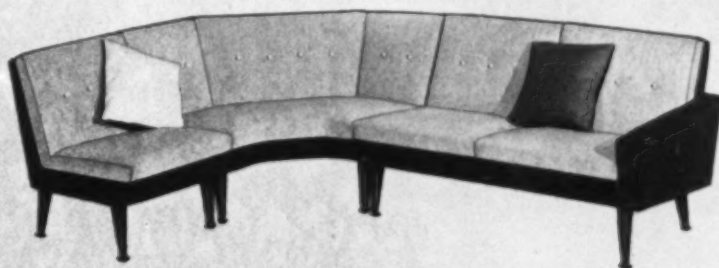


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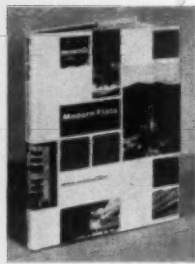
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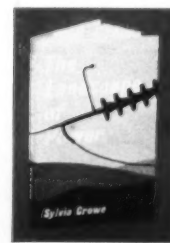
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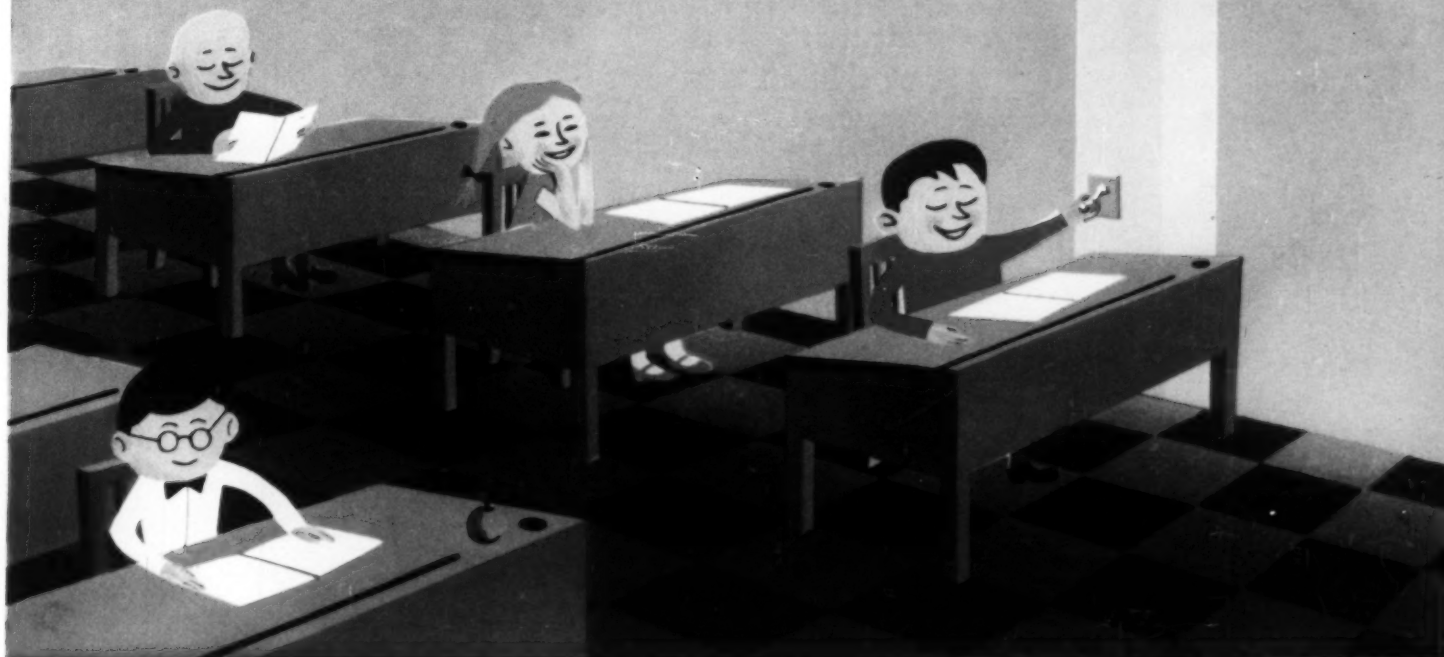
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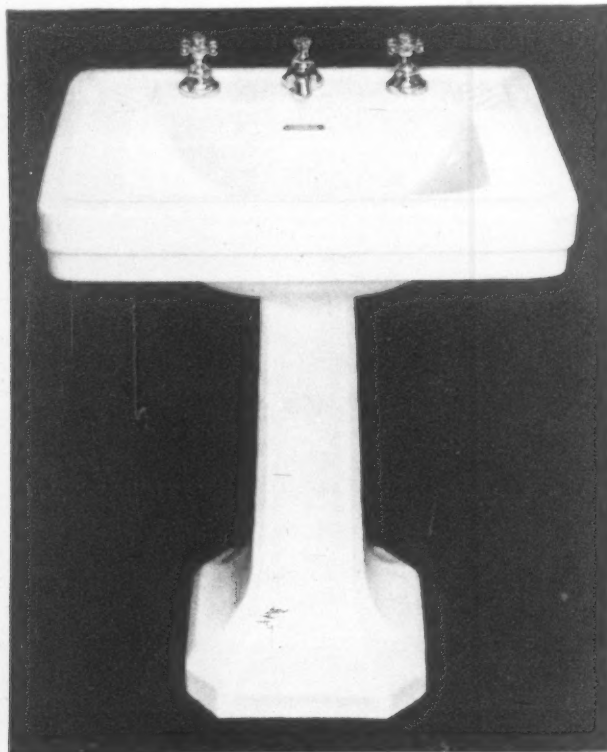
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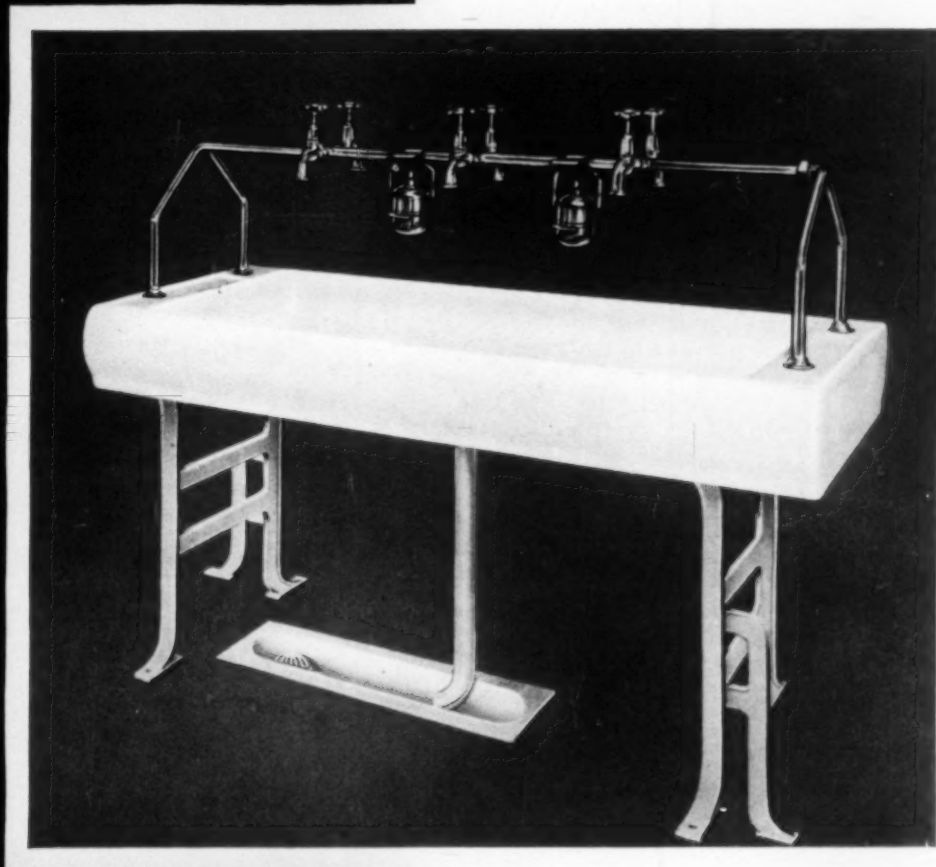
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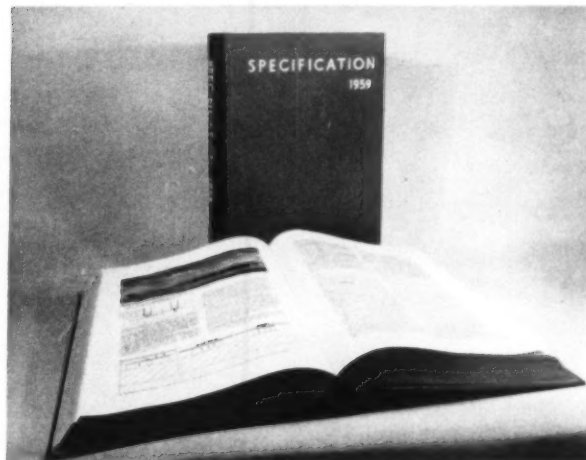
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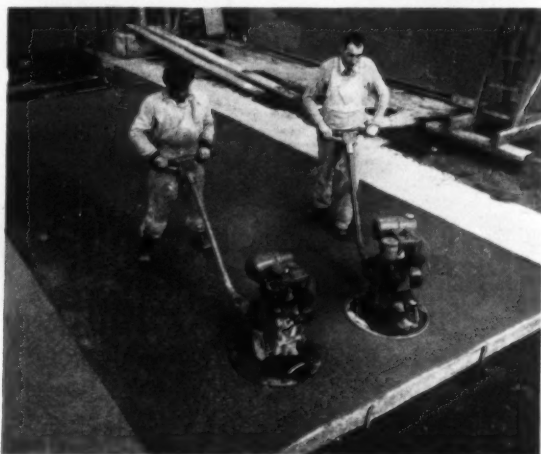
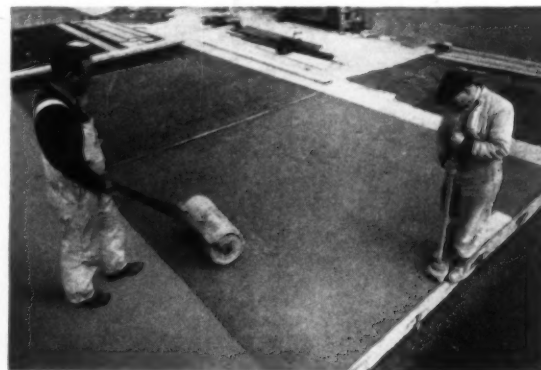
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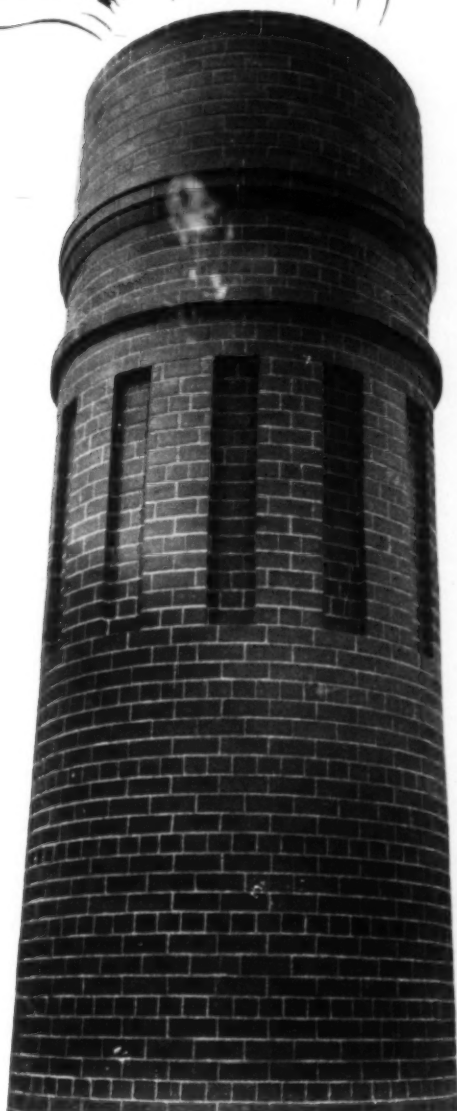
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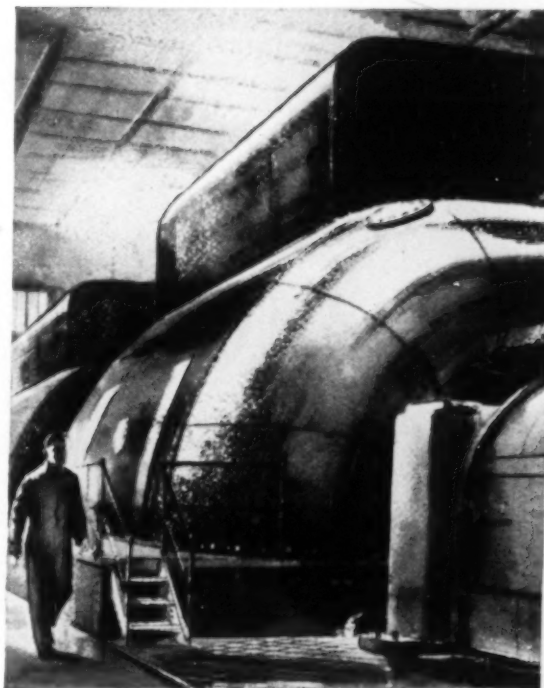
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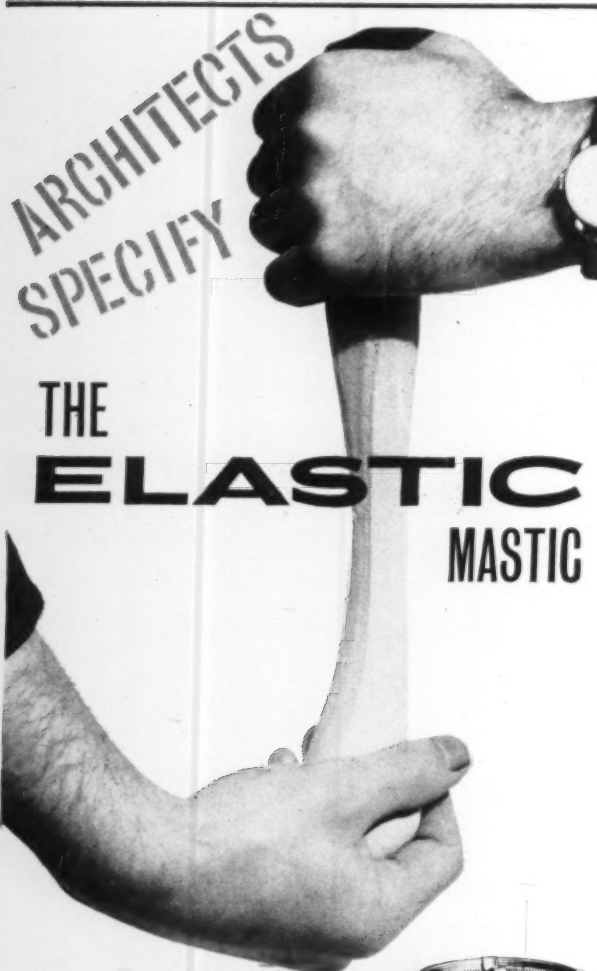
million kilowatts of nuclear-generated electric power will be available.

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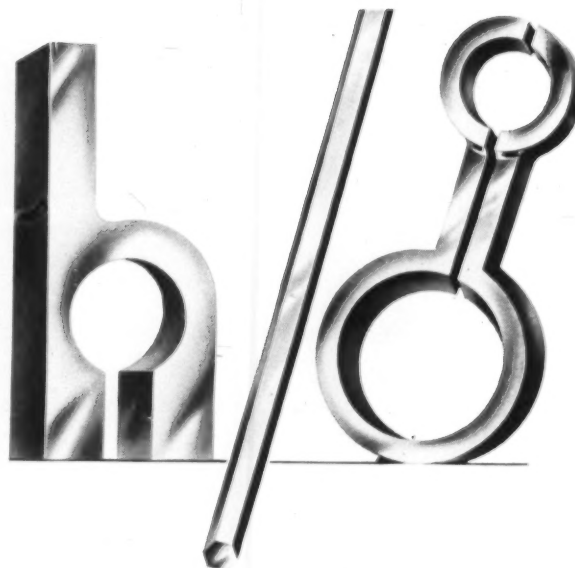
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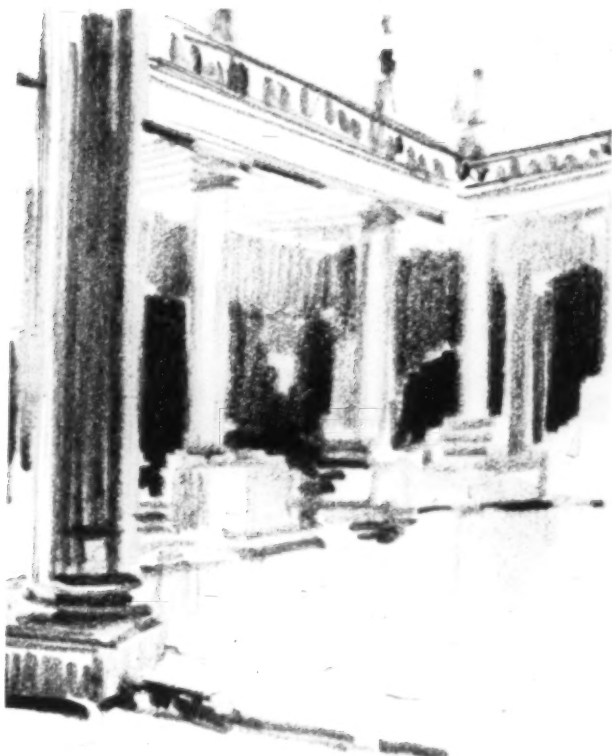
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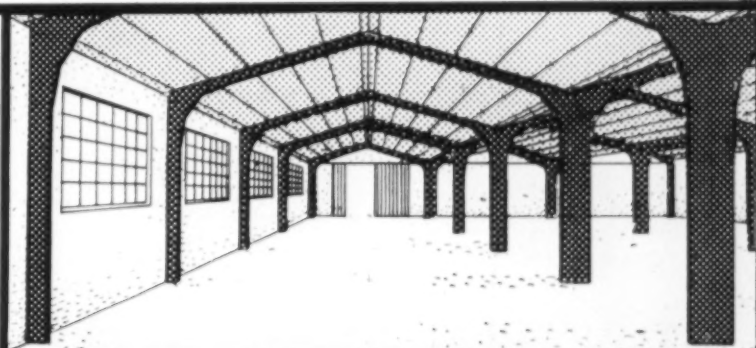
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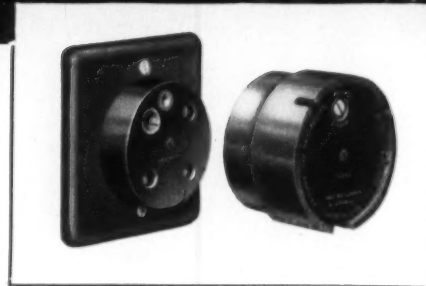
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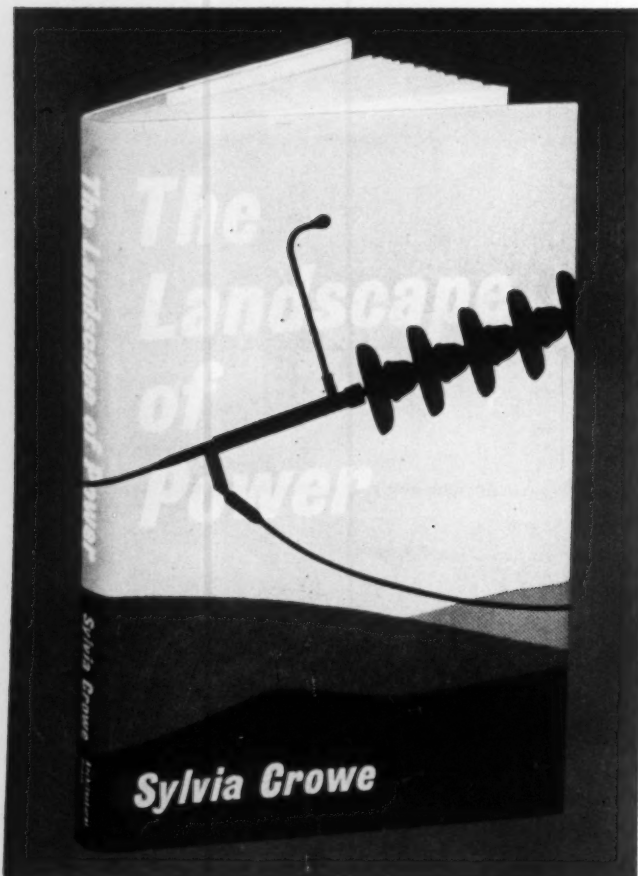
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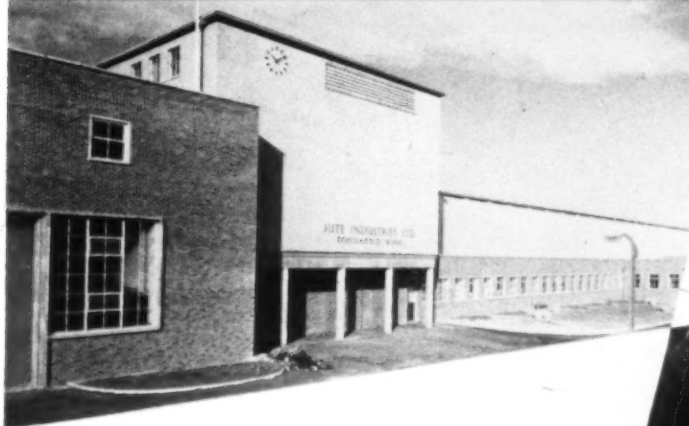
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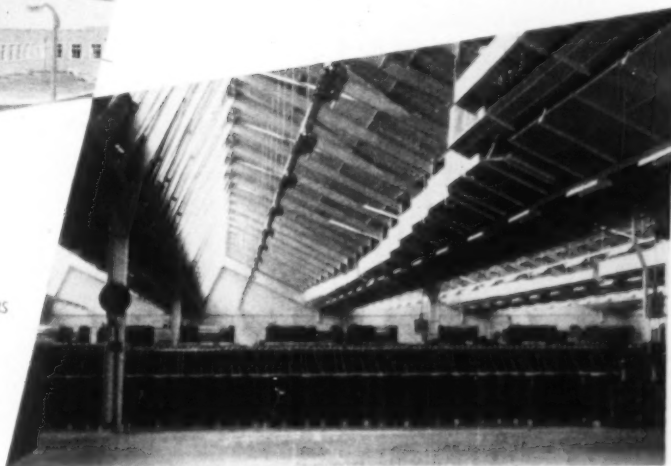
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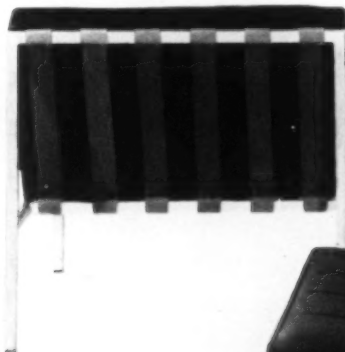
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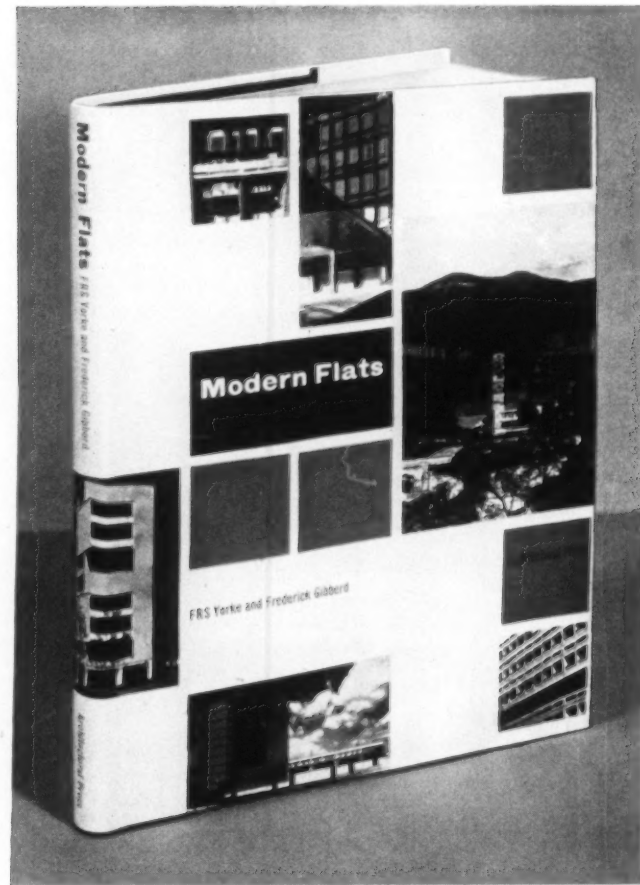
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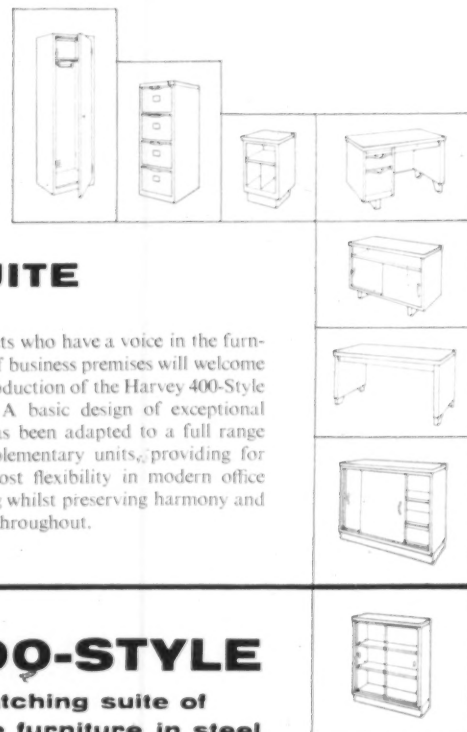
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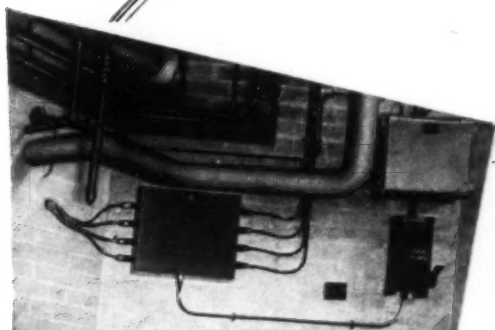
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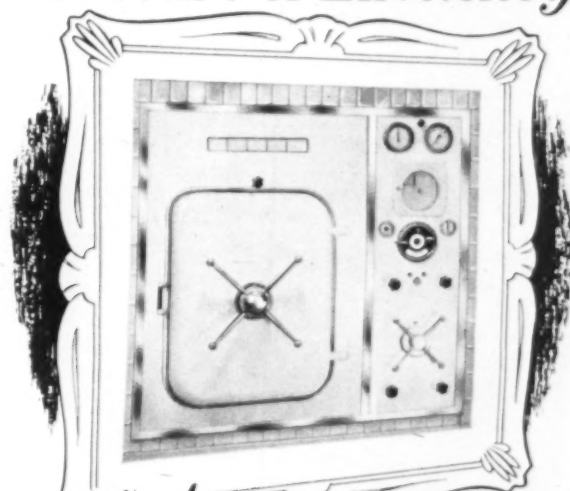
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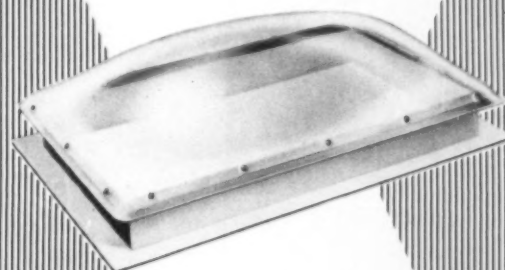
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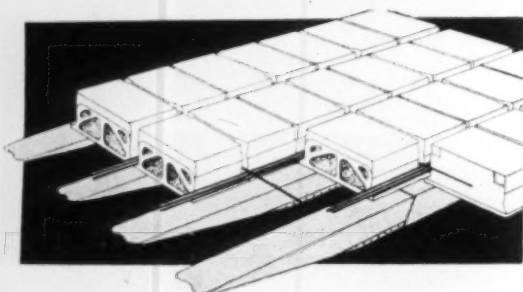
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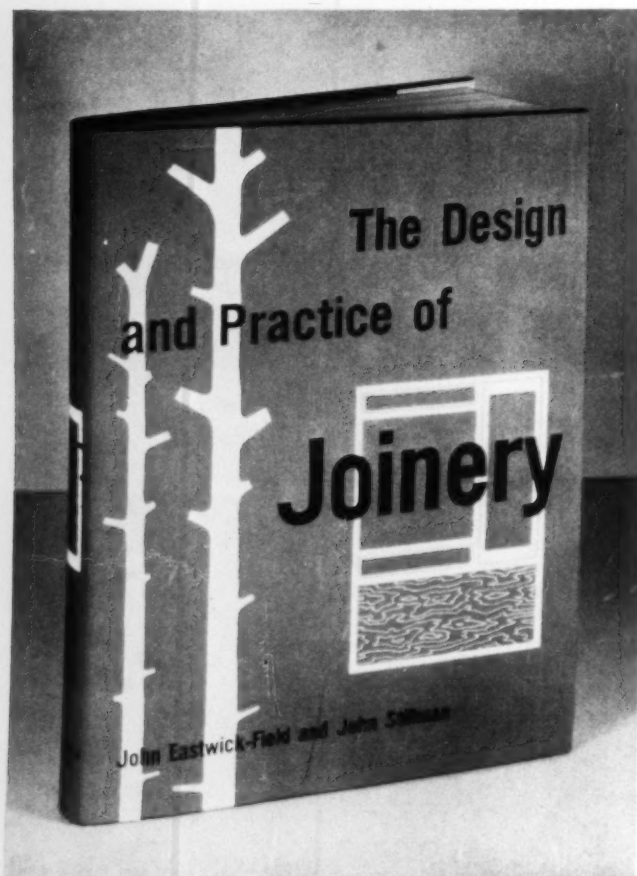
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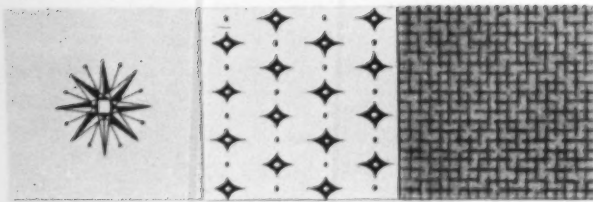
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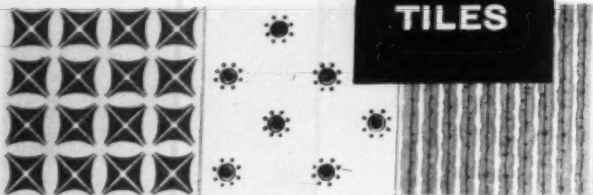


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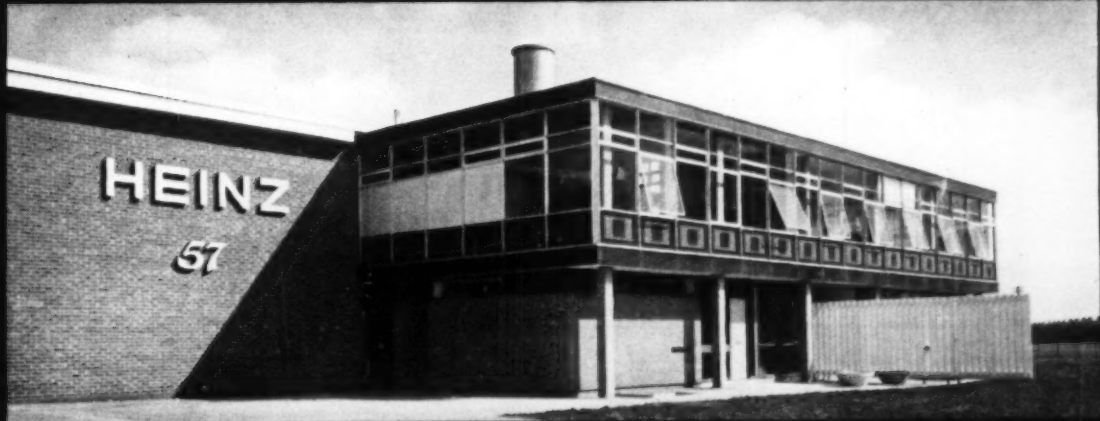
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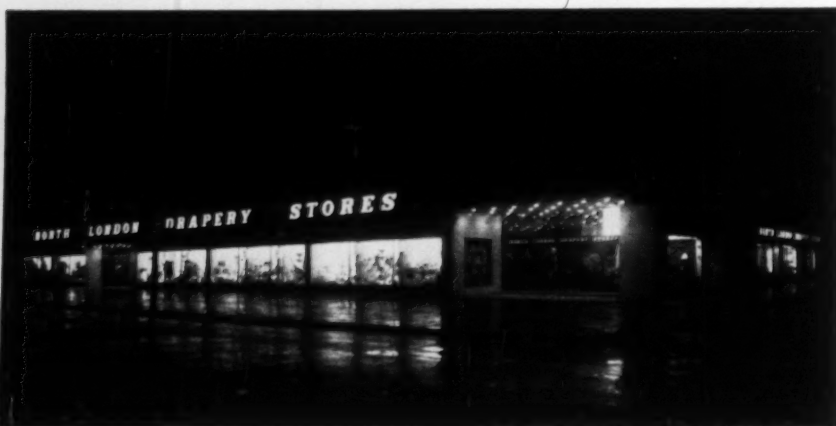
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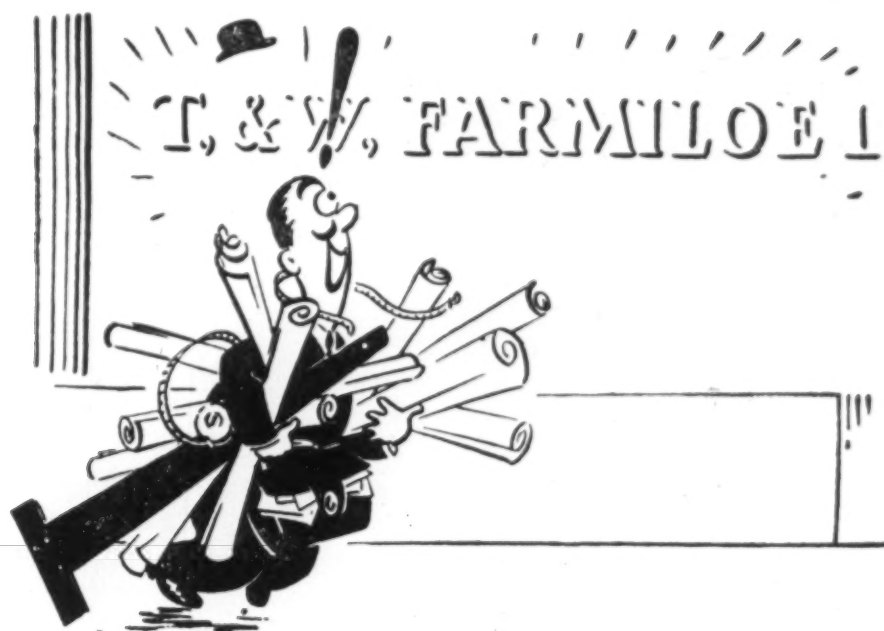
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